

MILITARY REVIEW

VOLUME XXIX

OCTOBER 1949

NUMBER 7

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MILITARY REVIEW—Published monthly by the Command and General Staff College at Fort Leavenworth, Kansas, in the English, Spanish, and Portuguese languages. Entered as second-class matter August 31, 1934, at the Post Office at Fort Leavenworth, Kansas, under the Act of March 3, 1879. Subscription rates: \$3.50 (U.S. currency) per year in the United States and other countries of the Western Hemisphere; \$4.50 a year in all other countries. Reprints are authorized, provided credit is given the "MILITARY REVIEW," C&GSC, Fort Leavenworth Kansas.

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THE INVASION OF NORWAY

An Example of Extended Strategy

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PART I THE INVASION

Introduction

ON 9 April 1940, all the important strategic centers of Norway were simultaneously attacked by German forces totaling less than 20 thousand men, plus air and naval elements. By 5 May 1940, southern Norway, which contains 85 percent of the total population, had been occupied, and by 9 June 1940 all of Norway had been cleared of organized resistance.

Thus, the seizure of a modern state of almost 3 million people, and an area of strategic importance in the war against Allied sea power, required less than 2 months and the total employment of not more than six divisions, plus naval and air forces. Of course, the Norwegian campaign would have been much more difficult, if not impossible, without the simultaneous seizure of Denmark, which required two more divisions.

This was a small portion of the total German war potential as is evidenced by the concurrent preparation and launching of the major campaign in the West. Although the launching of the offensive in the West had a number of successive postponements, there is no evidence to show

that these were caused by other than unfavorable weather. In fact, an entry in the Jodl Diary, dated 28 February 1940, shows these two operations were to be independent of each other—the decision to launch *Exercise Weser* (Denmark and Norway) first being due to political reasons.

That the invasion of Norway was outright German aggression is undeniable. However, the importance of this campaign for future historical study lies not in its testimony of German guilt but in the methods enabling its success. The campaign demonstrated the almost perfect integration of all military and non-military means of warfare—a modern example of extended strategy.

Initial Actions

Terrain.—Norway is an elongated, extremely rugged country, whose major population centers are located on its deeply indented coastline. This ruggedness would highly favor the defense if properly organized. But this same feature lays the defense open to defeat in detail, due to the sparsity of communications between the separated and exposed population centers, particularly if surprise is gained in the attack.

In her bold invasion of Norway in 1940, Germany made extensive use of psychological and political factors, but she integrated these non military means with a plan based on sound military principles

The German plan.—The German military plan called for the simultaneous seizure of the six major strategic centers of Norway—Oslo, Kristiansand, Stavanger, Bergen, Trondheim, and Narvik—by sea-borne and airborne landings. Employing limited forces, the operation was dependent for success upon surprise and audacity in the attack, enhanced both by previous psychological and political preparations and by maximum utilization of all non-military means of warfare. In order to analyze properly the application of the latter elements, their effect upon the former, and the integration of all efforts in the total offensive, it is first necessary to review the action from the Norwegian viewpoint.

Oslo.—At about midnight 8-9 April 1940, the air-raid alarm sounded in Oslo, the capital and largest city in Norway, caused by the entrance of foreign warships into Oslofjord. These warships had been challenged by a small Norwegian armed whaleboat, *Pol III*, patrolling the entrance, but it had been promptly destroyed by gunfire. The foreign warships (later identified as German) successfully passed the two forts, Rauer and Bolaerne, guarding the entrance to the fjord, at high speed. Rauer was later captured by a landing party while Bolaerne continued to resist for several days until reduced by bombing.

One group of ships, led by the light cruiser *Emden*, proceeded to Horten, the main Norwegian naval base situated on the west side of the fjord. A Norwegian minelayer, *Olav Trygvason*, anchored at Horten, opened fire on the approaching vessels, sinking several small boats and severely damaging the *Emden*. Notwithstanding, German landings were effected, and under threat of air and naval bombardment to the adjacent town, the Norwegian admiral surrendered the base. One report stated the naval station was captured by 100 German marines after the *Olav Trygvason* received semaphore sig-

nals from shore to cease firing. However, this probably occurred after the surrender ultimatum was accepted.

Meanwhile, the second part of the German force, led by the heavy cruiser *Blücher*, moved straight up the fjord on the inner defenses of Oslo at Fort Oscarsborg. These defenses, holding their fire, sank the *Blücher* at close range. Ft. Oscarsborg was later taken by a combination of bombing and ground attack from the rear by troops which had been landed at points farther down the fjord. Captured German plans show that these two actions in Oslofjord were to be simultaneous. However, if repulsed at Oscarsborg, the forces allotted thereto, including the pocket-battleship *Luetzow* ex-*Deutschland*, were to assist at Horten and to seize additional facilities on the opposite side at the fjord near Moss. The latter plan was apparently followed after the sinking of the *Blücher*.

At about 0830, German transport planes began landing on Oslo's commercial airport, Fornebo, whose pitifully weak defenses were overwhelmed with assistance from members of the German Legation staff. Some Norwegian reports stated parachute troops seized the airport; however, General Karl Student, commander of all German parachute forces, has stated that the one company of parachutists allotted for this mission became lost en route and only arrived after the airport had been secured. In a space of 2 hours, approximately three thousand troops had been landed, and by afternoon, despite the temporary defeat at Oscarsborg, Oslo was completely under German control. An American correspondent, Leland Stowe, wrote an interesting eyewitness report of the unopposed German parade into the center of Oslo at 1500, and the use of a military band, soldier singing, and martial parades to effect a psychological bluff over Oslo's populace until these lightly equipped troops were reinforced some 48 hours later.

Kristiansand.—The German forces attacking Kristiansand on the extreme south coast of Norway at dawn were met with fire from the coastal defenses and several small destroyers stationed there. The German light cruiser *Karlsruhe* was severely damaged (later sunk by submarine), and the German forces withdrew. However, the Norwegian commander soon received a telegram in the code of the Norwegian Navy stating that British and French warships were coming to help. Shortly, several destroyers were sighted flying the French flag. After they had been joyously received in the harbor, the French flag was struck and the German colors hoisted. The city, under German air attack and at the mercy of the naval guns, surrendered.

The actual source of this telegram is undetermined. It may have been a clever German ruse, for there is adequate evidence that German ships were directed to use British disguise. On the other hand, it may have been an authentic order from the Norwegian High Command rectifying previous instructions, and the resulting action a mere coincidence, since it is known that previously the Norwegian government was prepared to resist any infringement of her neutrality—British or German. Such instructions to resist the British were actually issued to the Naval Commander at Narvik and later rescinded.

Stavanger.—The most modern airport in Norway, Sola, was located about 20 miles south of Stavanger. This installation, guarded by only 20 Norwegian soldiers, was taken from the air in the same manner as Fornebo at Oslo. Led by one company of parachute troops, 250 transports rapidly landed approximately five thousand men, and the city was taken with little resistance.

Bergen.—A German naval squadron, including the light cruisers *Köln* and *Königsberg*, approached the entrance to Bergen, the second largest city in Norway, about 0100 on 9 April 1940. Despite being chal-

lenged by a small patrol boat, to which they replied "*Sei ruhig*" (Be quiet!), this force, led by minesweepers, proceeded cautiously up the fjord, ignoring the fire of a small fortress, Lerøy. This force, after being delayed by a few mines which had been hurriedly laid after the initial challenge, arrived about 0400 at the entrance to the inner harbor, which was guarded by two forts, Kvarven and Hellen. Both opened fire, apparently damaging the *Königsberg*, but this fire was not returned. The Germans, instead, signalled in English: "Stop shooting." Kvarven was immediately captured by a landing party, while Hellen was later bombed out.

At about the same time that the German naval force entered the harbor, German soldiers appeared in the streets of Bergen, reputedly coming from several German freighters which had arrived at Bergen several days earlier. These troops advanced with white flags attached to their bayonets, quickly taking over the town with no resistance.

Trondheim.—Surprise also succeeded at Trondheim Fjord. Brettenes Battery on the eastern shore opened fire on the German squadron, consisting of one light cruiser and several destroyers, about 0300, but its searchlight cables were cut by the first return salvo. Blinded by searchlights on the German ships and a smokescreen, the Battery's fire was ineffective. Fort Agdenes on the opposite shore apparently did not fire. There are some implications that the commander of Ft. Agdenes was involved in some treachery, but the evidence is inconclusive. The German force proceeded quickly up the fjord. By 0800 or 0900, the disembarked troops had effectively secured the town, occupying the nearby Vaernes airfield the next morning—all without further resistance.

Narvik.—Narvik, the northernmost point of the initial German attack, is the hub of communications in northern Norway and the terminus of a railroad from the Swed-

ish iron ore mines at Kiruna. A squadron of nine German destroyers of the latest type entered the fjord at dawn in the midst of a snowstorm. This squadron had successfully eluded a British naval force stationed off Narvik with the aid of bad weather and the decoy actions of the battle cruiser *Scharnhorst* and heavy cruiser *Hipper*. This German force was challenged at the entrance to the inner fjord by one of the two old Norwegian coast defense ships stationed at Narvik, the *Eidsvold*. A German officer was sent aboard demanding immediate surrender. After rejecting the demand, and while awaiting the officer's return to his ship before opening fire, in accordance with old custom, the *Eidsvold* was torpedoed and sunk.

Upon entering the harbor, the German destroyers were met by the gunfire of the *Norge*, the other Norwegian ship. After sinking one German destroyer and damaging a second, the *Norge* was sunk by torpedoes. Confronted by this naval force and German troops debarking from the holds of German merchantmen, Colonel Sundlo, the senior Norwegian officer at Narvik, surrendered the town. There has been much controversy over the exact action at Narvik, and Colonel Sundlo's role in particular. On the basis of a personal interview with Colonel O. Munthe-Kaas, Norwegian Army (Norwegian Military Attache to the United States), who participated in the later fighting around Narvik, the following appears to be correct. No garrison was stationed in Narvik, but a battalion had been ordered to the town from a nearby camp early in the morning, two companies of which arrived, another being captured intact as they debarked unsuspectingly on a ferry landing. But these troops became so intermixed with the startled and curious populace, who, in turn, were intermixed with the already advancing German troops, that organized resistance became impossible. Colonel Sundlo was not in command of the Norwegian bat-

talion nor of Narvik, but being the senior officer on the scene, he was looked to for instructions. Perceiving the utter confusion, he offered the surrender of the town. Colonel Munthe-Kaas believes that Colonel Sundlo acted in this instance in good faith in what he believed to be a saving of civilian lives. However, there is ample evidence that Sundlo was a good friend, if not an adherent, of Quisling. He later accepted a position in Quisling's administration.

Subsequent Action

The situation.—Although Oslo, as well as other initial targets, was completely under German control by the end of the first day, the initial repulse at Fort Oscarsborg had a major effect on the German campaign. As will be discussed in detail later, the German plan envisaged the early capture of the Norwegian King and Government and their immediate replacement by a subservient regime, which would make complete the paralyzation of Norwegian resistance, as occurred in Denmark. The *Blücher* had on board the *Gestapo* detachment and German administration staff assigned to this task. Its sinking, and the subsequent delay in seizing Oslo caused by Fort Oscarsborg, gave almost 8 hours respite, enabling the King and Government, after refusing the surrender ultimatum presented by the German Minister about 0430, to escape north. This escape of the King and Government leaders enabled Norwegian organized resistance to continue for some 2 months and forced the German forces into a more lengthy campaign.

Oslo region.—The immediate German tasks, when confronted by this situation, were first to consolidate their position around Oslo, and then to drive north to establish communications with their forces in Trondheim. In accomplishing the first task, the German forces met little resistance. General mobilization of Norway was ordered shortly after the German naval

NORTHERN EUROPE



force entered Oslofjord. But the very centers which were now in German hands, and which contained all the major arsenals, were those on which the Norwegian mobilization was based. The efforts to mobilize, therefore, became hopelessly confused.

By 15 April, despite an initial delay of 2 days until forces were available and a shortage of artillery, the German forces had secured Ostfold, the southeastern district between Oslofjord and the Swedish border. Considerable Norwegian military supplies were captured, and the Germans had pushed north and west of Oslo, cutting the main routes to Bergen and Kristiansand. The Germans could now direct all their efforts on the essential task of clearing the main routes to their forces in Trondheim. The 1st Norwegian Division, southeast of Oslo, withdrew into Sweden and was interned on 15 April 1940. The 3d Norwegian Division surrendered north of Kristiansand on 16 April. By 22 April, the Germans had secured all the southern coast. Small Norwegian units continued resistance in the rugged southwestern hinterland for some days, notably at Voss to which the Bergen forces withdrew, but this had no effect on the subsequent operations.

Allied aid.—Taken by strategical surprise, the British Navy had failed to prevent the invasion of Norway. Although political support was immediate, Allied troops were too late and ineffective.

The Allies, perceiving that Trondheim was the strategical key to Norway and that it must be retaken quickly if any effective resistance was to be made, originally planned for a direct naval assault up Trondheim Fjord, assisted by a double land envelopment from landings to the north and south at Namsos and Andalsnes. However, the direct assault was abandoned due to the pious hope that the envelopment would prove sufficient without risking naval forces against German air power in

the narrow waters of the fjord. Yet, William L. Shirer * recorded on 21 April 1940: "What the Germans fear most, I gather, is that the British Navy will get into Trondheim Fjord and wipe out the German garrison in the city before the Nazi forces from Oslo can possibly get there. If it does, the German gamble is lost." This was the same sort of Allied hesitation that defeated the Dardanelles campaign in World War I.

The battle for Trondheim.—A landing was made at Namsos on 14 April and reinforced on 16-18 April to a total of one British brigade plus a *demi-brigade* of French *Chasseurs Alpins*. But this column was stopped at Steinkjer, well short of its goal, on 21 April by German forces from Trondheim. The Germans made an amphibious envelopment of the Allied column with the aid of a German destroyer and torpedo boat still operating in Trondheim Fjord.

Two British brigades landed at Andalsnes on 17-19 April and proceeded rapidly to secure the critical rail junction of Dombas, which connects the route from Andalsnes with the main north-south route, the Gudbrandsdal, from Oslo to Trondheim. On 14 April, one company of German parachute troops had been dropped at Dombas to block this junction, but apparently it was scattered in the drop and quickly eliminated. The British force was diverted from advancing on Trondheim, however, to aid the Norwegian forces to the south. The latter, for the first time, were providing some semblance of organized resistance to the German advance along the Gudbrandsdal. But overwhelming German air superiority, due to the German possession of all Norwegian airfields, made these efforts futile. Unable to support their forces against such odds, the Allies evacuated their Andalsnes forces during the night of 1-2 May and the Namsos forces

* *Berlin Diary*. (New York: Alfred A. Knopf, 1942), p. 257.

the next night. By 5 May 1940, all organized Norwegian forces in southern Norway had surrendered.

The battle for Narvik.—Meanwhile, fighting had been going on in the Narvik area. Some Norwegian units had been on guard duty along the Finnish border during the previous winter, due to the Finnish-Soviet War. These were able to block effectively the German drive north from the Narvik area and thus allow a more orderly mobilization in the surrounding districts. On 10 April 1940, a British destroyer force engaged the German destroyers in Narvik harbor, sinking one and damaging three others. But the British were forced to withdraw, due to their own losses, after having sunk several German supply ships. On 13 April, a British force returned, led by the battleship *Warspite*, and sank the remaining German destroyers and supply vessels.

The Norwegian forces gradually forced the Germans back toward Narvik. Reinforced by Allied landings, they retook the town on 28 May 1940. The blocking of German ore traffic from the Swedish mines at Kiruna was the strategic purpose of Allied operations at Narvik, into which they put a total of 15,000 troops. But the victory at Narvik was short-lived, for the Allied reverses in France forced a withdrawal. During the night of 8-9 June, all remaining Allied forces in Norway were evacuated, taking along the Norwegian King and Government, which had moved to northern Norway upon the evacuation of the Trondheim area. On 9 June 1940, the last remaining Norwegian organized force surrendered.

PART II ANALYSIS

German Preparations

Strategical concept.—A retired German naval officer, Vice Admiral Wolfgang Wegener, published in 1929 a very penetrating criticism of German naval strategy

of World War I.* In this study, he pointed out that Germany lost the war due to the continental strategical concept which tied the Navy to the German *Bight* rather than allowing it to operate offensively on the high seas from positions in Denmark and Norway. This work, and the attention given it in German military and naval circles, was well known in the British Admiralty. This thesis must have had many adherents in the German Naval Staff, for at least as early as October 1939 the Naval Staff had prepared studies for a Norwegian campaign. An entry in Admiral Raeder's War Diary records that he first discussed the significance of Norway for sea and air warfare during a conference with Hitler on 10 October 1940. In a memorandum written sometime later, Raeder states he also discussed the danger of British occupation of Norwegian bases, but this may have been an attempt to support the German announced "reasons" for the attack. In any event, he apparently received a lukewarm reception to his plans at that time.

Political contacts.—Meanwhile, as part of the over-all German foreign penetration program of the Foreign Policy Office (APA) of the Nazi Party (NSDAP), Alfred Rosenberg had made the acquaintance of Vidkun Quisling, an ex-Norwegian Army officer and leader of a Norwegian Nazi party (*Nasjonal Samling*). Quisling had convinced Rosenberg of the advantage of Norway's coast to Germany in event of war with Britain and of his ability to turn the country over to Germany, provided he received adequate German support. The latter began as early as August 1939, when 25 members of the *Nasjonal Samling* selected by Quisling were given a 14-day course in Berlin under Rosenberg's sponsorship.

Sometime after the general war broke out, Quisling reported that Britain was

* *Die Seestrategie des Welt Krieges*. (Berlin: F. G. Mittler and Son, 1929).

planning to occupy Norway under the guise of aid to Finland. Rosenberg brought this information to Raeder's attention, and on 11 December 1939 he took Quisling to talk to Raeder. Thus, Quisling's plan and information, although belittled by both the German Legation in Oslo and the Foreign Office who considered that Norway would defend her neutrality against anyone, supported Raeder's own plans. Armed with this support, Raeder was now able to convince Hitler.

The decision.—A German Naval Staff meeting was held on 12 December 1939 with Hitler, who had meanwhile received reports from Rosenberg on Quisling and seemed "entranced with the possibilities of incorporation of Norway into the German empire," according to Raeder. The various aspects of the subject were discussed and the Navy recommended the occupation of Norway: (a) by peaceful means in conjunction with Quisling, or (b) by force. Hitler decided to receive Quisling in order to form a personal impression, and he then ordered the High Command (OKW) to prepare plans for the occupation of Norway in the spring. Raeder records that this order was issued on 12 December 1939 and that Hitler received "Q" on the same day. Rosenberg stated Quisling was received by Hitler for "personal instructions" on 16 and 18 December, and that Hitler's decision was based on Quisling's work as reported by Rosenberg. However, an entry by Jodl in his war diary, dated the middle of January 1940, states Hitler "makes up his mind to utilize the Danish and Norwegian space for the German warfare."

The decision to undertake the occupation of Norway (and Denmark) appears to have been an afterthought in the over-all German war plan. However, the estimate that this could be accomplished by minimum forces and without effect on the impending major offensive in the West could not but have weighed heavily the previous

existence of favorable psychological and political preparations. The latter would facilitate the use of all non-military means of warfare to the maximum advantage, as well as the maximum employment of surprise and deception. In his directive for the operation (*Fall Weseruebung*) issued 1 March 1940, Hitler prescribed that the principle to be followed was to give the appearance of a "peaceful" occupation for protection of the neutrality of the Scandinavian states. If there were opposition, full military action would be employed. However, the military force to be employed would be as small as possible, its numerical weakness to be balanced by daring actions and surprises. In proper military procedure, such a formal directive would only be issued on the basis of a most careful estimate of the situation prepared by the staff of the high command.

Norwegian Preparations

Pacifism.—The attitude of Norway between the two wars was typical of all the western democratic countries—war was a thing of the past, because cooperation between nations, exemplified in the League of Nations, made war almost impossible. This general attitude was overly pronounced in Norway, since she could point to more than a century of peace, having successfully weathered World War I as a neutral. Even after the example of Ethiopia, Austria, and Czechoslovakia, the attitude of "it can't happen here" prevailed, for Norway had no minorities and no subversive elements worthy of note. Even though Quisling had founded his *Nasjonal Samling* Party in 1933, he was looked upon as an eccentric, and his party was a national joke. This attitude is best typified by an incident related by Mrs. Florence J. Harriman, United States Minister to Norway. At a diplomatic party in the fall of 1939, a woman ventured that the Nazis might want southern Norway. The woman was immediately "hooted down" as a war-monger.

Defenses.—In such an atmosphere, rearmament was extremely unpopular and this attitude was reflected in the state of the armed forces. Although there were coastal fortifications in all the important fjords, they were extremely ancient and entirely lacking in anti-aircraft protection. The navy had some 50 ships of all sizes, the majority more than 25 years old with no modernization. The air force had less than 50 combat planes, all obsolete, and only 85 pilots. Nineteen Curtiss Pursuits, a recent acquisition, were captured by the Germans still uncrated, at Kjeller, the main military air base near Oslo, on 9 April 1940. The active army of 1,900 officers and 12,000 men had no tanks or anti-tank guns, few anti-aircraft and machine guns, and little ammunition. Total mobilization would provide an additional 100,000 men, but there was a lack of trained officers and equipment for these. The events of the Finnish-Russian war had invoked an almost naive belief in the superiority of ski troops, for which Norway was admirably equipped.

Neutrality policy.—Upon the outbreak of general war in September 1939, Norway was convinced she could maintain her traditional neutrality as in World War I, oblivious to the fact that modern total warfare had produced revolutionary changes with respect to geography. Her handling of the *City of Flint* affair is an almost perfect example of her determination to abide by intricate international procedure. The *City of Flint* was a captured United States freighter, carrying a German prize crew and British prisoners of war. Norway's protest to Britain over the *Altmark* affair demonstrated her official impartiality, although this served to heighten Germany's concern, intensified by Quisling's reports, over an imminent British plan to occupy Norwegian bases. Refusing a proffered treaty of non-aggression in the spring of 1939 due to fear of a seemingly pro-German attitude, she nego-

tiated dual trade agreements with both England and Germany in an attempt to solve the ore traffic problem.

German Psychological and Political Program

The Germans capitalized on the conditions in Norway in their psychological and political preparations. First, they strengthened the feeling of security and complacency. Second, they restrained any unfriendly tendencies through fear. Third, they developed the conditions necessary for revolution, if needed.

Trustfulness.—Beginning early in 1933, the Nazis determined on the necessity of winning over the Northern countries. The method was cultural penetration. The Nordic Society was formed in all these countries for the ostensible purpose of exemplifying and furthering Nordic culture, with which the German was identified. The Society's leader, Lohse, was selected by the Foreign Policy Office of the Nazi Party (NSDAP). Nordic artists and scientists were invited to Germany, and exhibits of their work were fostered. All this was designed to show the close ties of Germany to the Scandinavian countries, to give an impression of deep friendship for them, and to intensify the existing unawareness of reality. Germany further strengthened this program by the formal offer of non-aggression treaties in the spring of 1939.

Whether intentional acts on the part of Germany or mere chance, a series of false alarms occurred in Norway during the winter of 1939-1940 which may have served to further quiet any Norwegian who might view ominous events with less trust than the government. A day or two before Christmas in 1939, reports were received in Oslo that a large German fleet on its way to Norway had passed the Danish islands in the Baltic. Military leaves were cancelled and forts were manned, but no fleet appeared. In February 1940, the Norwegian Legation in Berlin reported, from

a "reliable source," an impending German naval expedition against southern Norway. Again, no fleet materialized. When the Norwegian Legation in Berlin sent a similar report on 5 April 1940, it was received with much skepticism in Oslo. The Psychological Warfare Section of the German General Staff may have read the old fable of "Cry Wolf!"

That the first phase of German psychological preparations was extremely successful is attested by the lateness of the Norwegian mobilization order, despite adequate warnings. British reports of German ships sighted in the North Sea and Baltic were received on 8 April. These reports were confirmed by a report from the United States Legation in Copenhagen that a large German naval force had passed into the Kattegat. That same afternoon, German soldiers, survivors of a torpedoed German transport, *Rio de Janeiro*, landed on the south coast, stating they were en route to Bergen to help the Norwegians defend their country against Britain and France. Still, general mobilization was not ordered until early on 9 April 1940.

Terror.—The second phase of the German psychological campaign—the production of terror—had its beginnings prior to the operation. In contrast to the first phase, it only reached its climax after hostilities had commenced. Veiled threats as to the possible consequences which an unfriendly attitude toward Germany might invoke had been used in the diplomatic intercourse between the two countries during the winter of 1939-1940. These threats were particularly pronounced during the *City of Flint* affair and during the course of the Finnish-Soviet War. A curious aspect of the program occurred a few days before the German invasion. On the night of 5 April 1940, the German Minister in Oslo, Dr. Curt Brauer, held a reception at his Legation, attended by various persons in the Norwegian government. The *pièce*

de résistance of the reception was the showing of a new German film depicting the conquest of Poland, culminating in the bombing of Warsaw. This was obviously intended to be a warning. Evidently to offset any possible alarming reaction, Dr. Brauer on the next day invited the Norwegian Foreign Minister, Dr. Koht, along with the United States, Danish, and Swedish Ministers and their wives, for dinner on 19 April—a subtle bit of deception furthering the first phase of the German psychological program.

Revolution.—The third phase of the German psychological and political program—the development of revolution—only brought returns after the invasion began, but they had received careful preparation. Quisling, picked by Germany to be the organizer and leader of the potential revolution, had a background strangely similar to other contemporary conspirator-dictators. He had been a brilliant military student and young officer. While serving as a member of an international relief mission to Russia during the postwar era, he had been converted to Bolshevism.

Later, returning to Norway and retiring from the Army, Quisling offered to organize "Red Guards" for the Norwegian Labor Party. Rejected in this effort, he turned to the new Farmers Party, apparently with the idea of forming "Green Guards" and became an outspoken opponent of the Laborites. Serving as defense minister during the short regime of the Farmers Party in 1931-1933, he invoked widespread public dislike by a strange "assault" incident on his person, believed to be faked, and an incendiary speech against the Labor Party Leaders.

Soon after, Quisling formed his own party, *Nasjonal Samling*, patterned on Nazi lines. His new party initially gained considerable support from the youth element, but this support gradually declined and the party never polled sufficient votes to place a member in the *Storting*. Some

of the characteristic "lines" of the Nazi program backfired on Quisling. For instance, the wearing of colored shirts was outlawed. Since there were practically no Jews in Norway, anti-semitism had to be directed against "spiritual Jews."

Rosenberg was evidently fooled as to Quisling's ability, probably due to Quisling's own delusions. In a report on one of Quisling's visits, Rosenberg described Quisling as being one of the best-known officers of the Norwegian General Staff, having the high regard of the King and a following of two to three thousand supporters, including large sections of the Army. In any event, Quisling sold his plan for an overthrow of the Norwegian government, with German support, first to Rosenberg and then to Admiral Raeder in 1939. In doing so, he obtained the training of selected party members in Germany and financial support to the extent of 200,000 gold marks in January 1940.

Among the other lesser-known conspirators active during this period was Hagelin, the Norwegian agent for the purchase of armament in Germany. Without the knowledge of his Norwegian superiors, Hagelin also acted as Quisling's representative in Berlin. After the decision on Norway was taken, a German representative of Rosenberg, Scheidt, was placed in the Naval Attache's office in Oslo as liaison with Quisling. Through Scheidt, Quisling received his funds. On one of his visits, Quisling showed Rosenberg a letter from Colonel Sundlo, the senior officer at Narvik, which stated he was against the present government and that it was "a good idea and a useful one to spend one's time risking one's neck for the national revival." Sundlo became Chief of State Police under Quisling. Another of Quisling's adherents was Jonas Lie, Chief of the Norwegian State Police. Carl J. Hambro, in *I Saw It Happen in Norway*, page 97, attempts to prove Lie innocent, but Lie became Quisling's Minister of Police.

As related above, Quisling received "personal instructions" from Hitler in December 1939. In the spring, his party paper, *Fritt Folk*, which had declined to a third-rate weekly, suddenly revived into a daily. He was again called to Copenhagen on 4 April 1940 for a conference with Piepenbrock, German Chief of Counter-Intelligence Service, presumably for last-minute instructions. Quisling returned to Oslo on 8 April, the day before the attack. Thus, the German preparations for revolution were complete.

The Production of Paralysis

Military acts.—With the opening of military action on 9 April 1940, the Germans intensified their psychological warfare to gain both widespread terror and paralysis, the one aiding the other. The overwhelming German air superiority made the first easy. It will be recalled that both the main naval base at Horten and the city of Kristiansand were surrendered early on the first day, largely through threat of wholesale bombing. As the Norwegians continued resistance, numerous towns were completely leveled, particularly wherever the King and Government were located. Some of this undoubtedly was for terroristic effect. Threat of naval bombardment was also used in the same manner.

Political acts.—Both the policies of friendship and terror were followed in the diplomatic efforts of Dr. Brauer, the German Minister to Norway. About 0430 on 9 April 1940, Brauer presented an ultimatum to the Norwegian Foreign Minister, Dr. Koht. It stated that the German government had unimpeachable evidence of an Allied plan to occupy Norway; that even if the Norwegians desired to resist, they did not possess the force to do so; therefore, the German Government had decided to come to Norway's aid and prevent such an Allied plan. It demanded the surrender of all military installations and all communications and the complete censorship

of all news. It finally guaranteed that the territorial integrity and political independence of Norway would be respected in accordance with the long friendship between the two countries. Then Dr. Brauer remarked as to the terrible consequences that would befall Norway should she not accept these demands immediately, for German forces were already engaged in military operations (of which the Norwegian government was by that time well aware).

Confusion.—Paralysis and despair were gained through the suddenness of the attack and the resulting confusion. Aside from its purely military considerations, the simultaneous attack on all the major Norwegian centers with complete strategic and tactical surprise undoubtedly had a paralyzing psychological effect. The resulting confusion in the Norwegian mobilization plans has already been noted. This confusion was further heightened by the seizure of the powerful Oslo radio by Quisling, who announced about 1000 on 9 April that he was now the head of government, that all mobilization orders were cancelled, and that resistance to the German forces should cease. Quisling had distributed in the streets of Oslo the preceding evening leaflets stating that the existing government must be overthrown and that the *Nasjonal Samling* must take over. The Norwegian Government, having earlier retreated northward, had only the small radio at Hamar, capable of reaching only a small section of the country, with which to combat this propaganda. The questionable action of Colonel Sundlo at Narvik, the commander at Ft. Agdenes, and others, also tended to heighten the confusion.

Legality.—The Germans, realizing the psychological effect of legality, made continuous but futile attempts to gain the recognition of Quisling by the King, after failing to capture the King as planned. The *Blücher* had aboard the SS and *Gesapo* agents who were to capture the King

and Government, but the ship was sunk. Quisling attempted by telephone on the morning of 9 April to order the commanding officer of the Elviran District, to which the Government fled, to capture the King. A German force, led by the Air Attaché in an official Legation car, was stopped short of the same goal. The Germans finally had to depose Quisling in order to obtain the cooperation of the administrative functionaries in Oslo.

An Integrated Plan

Sound military principles.—As has been seen, the military action of the campaign made full use of the German psychological and political preparations and all the means of psychological warfare, but dependence was not placed on these to the detriment of sound military principles. German air superiority—the modern dominant weapon—was overwhelming. The ground forces were superior at the decisive points, both in organization and technical equipment, if not in numbers. Use was made of air transport for movement to gain speed and surprise. Although the German naval forces were inferior to those which the British were expected to employ, the Germans depended on strategical surprise to gain their objectives before the British could become effective. The German plan violated the principle of concentration, opening their forces to defeat in detail, but they depended on immediate dislocation of the enemy and the slowness of Allied reaction to prevent defeat until concentration could again be gained. This plan nearly failed in regard to Narvik, but the imminence of the blow in the West must have been taken into account. Even in the selection of the date for the attack, military considerations outweighed other factors. Despite the urging of Quisling and Admiral Raeder for an earlier date, the most favorable weather for the military action was apparently the controlling factor. Thus, the non-military means of

warfare were not to replace all or any part of a sound military plan, but to supplement and enhance its chance for success.

Emphasis on surprise.—It is true, however, that the military plan depended to a large extent on the achievement of surprise, including the use of ruses and deception, which reflected the German confidence in their psychological preparations. All preparations were conducted in extreme secrecy and made to appear as if they were a part of the preparations for the offensive in the West. The concealing of troops in the holds of merchant ships arriving at Bergen and Narvik (and possibly Trondheim) reduced the number of transports accompanying the naval convoys into the North Sea, thereby further aiding strategic deception. Hambro, cited previously, states the trade agreement with Germany allowed the use of double crews on German freighters transporting fish in order to facilitate loading. The German naval order for the operation directed that all forces were to fly the British flag upon entering ports and to use British signals, because of information that the Norwegians would not oppose a British invasion. The exception to this order was to be at Narvik. There is also some evidence of the German use of Norwegian and Red Cross uniforms.

An example of audacity.—The confidence which the Germans had in the success of their psychological production of Norwegian optimism is reflected in a unique example of reconnaissance. One afternoon in February 1940, a German transport airplane landed on Fornebo airport from which some 30 passengers disembarked and scattered over the field taking pictures, making sketches and writing notes. When asked for papers, the pilot produced a permit to investigate the *Altmark*, about 40 miles away. This incident, occurring at the height of the "Altmark affair," went almost unnoticed.

Limitations.—The Germans apparently

anticipated greater returns from their psychological warfare and the paralyzing effect of their onslaught—similar to the complete capitulation in Denmark. There is evidence that the failure of Dr. Brauer to obtain legality for Quisling by acquiescence of the King produced somewhat of a political crisis in Hitler's headquarters. However, there is some evidence that Dr. Brauer had not been fully informed as to Quisling's destined role. Admiral Raeder sharply criticized the mishandling of the political end of the operation in his summary dated 22 April 1940.

Such anticipation is similarly reflected in the instructions issued to the troops regarding the patient attitude to be taken toward the Norwegians. The remarks of survivors of the *Rio de Janeiro* have already been noted. Parachutists landing at Dombas, surprised at the resistance, exclaimed: "But—they are firing on us!" Expected non-resistance may have also been the reason for the *Blücher's* close approach to Ft. Oscarsborg. It is reported that a German naval officer later stated that no resistance was expected from Ft. Agdenes at Trondheim.

But the complete success of the campaign, despite such set-backs, only testifies to the completeness of the over-all integrated German plan. Such completeness is also revealed by the inclusion of an economic section on Von Falkenhorst's staff, concerned with the immediate use of captured enemy supplies and native resources, and the immediate resurrection of Norway's economic production to aid the total German war effort. The inclusion of troops from Austria, whose youth had been spent in Norwegian homes (termed by the Norwegians: *Wiener-barn*), attests to the detailed planning.

Conclusions

The contention of one author, that the purpose of the Norwegian campaign was to test whether the Allies were prepared for

total warfare in the West, can be definitely refuted from the evidence now available. Although there may have been some effect on Allied morale—propaganda of the deed—the campaign was undertaken because of a definite decision that the “Norwegian space” was needed for the German war effort. In his directive for the operation, Hitler gave as the object of the operation: (a) to prevent British encroachment into Scandinavia and the Baltic, (b) to guarantee the “ore base” in Sweden, and (c) to give the German Navy and Air Force a “wider start line” against Britain.

Once the decision was undertaken to occupy Norway (and Denmark), the execution was not left to military force alone. All means, military and non-military, which would contribute in any way to the paralyzation and dislocation of the enemy, were exploited. Even the handicap of naval inferiority was overcome by the use of surprise and audacity, attributable in no small part to the adroit exploitation of the non-military means of warfare.

That psychological and political conditions favorable to the German plan of operation existed in Norway, even before the decision was taken, was no accident. Long, conscientious study had been given to psychological warfare in Germany. One of the basic tenets evolved was:

Psychological warfare must score its most decisive successes prior to the outbreak of armed hostilities.*

Certainly, Norway proves this conclusion, for the one outstanding German psy-

chological success was the strengthening of the Norwegian attitude of “it can’t happen here.” This is the principal condition which enabled German surprise. German “Comparative National Psychology” demanded that the weak and strong points of all countries be studied. The Germans were thus intentionally prepared.

There were certain German failures in the psychological field, notably the overestimation of Quisling’s strength within Norway and the temper of the Norwegian Government, but these were largely mistakes in technique and not in principles. That Quisling did add considerably to the weakening of effective resistance by his attempt to counteract the mobilization order over the Oslo radio is attested by both Dr. Halvdan Koht and Mr. Carl J. Hambro, the Norwegian Foreign Minister and President of the *Storting*, respectively.

The lesson to the United States is clear. The unrealities of pacifism and the belief that all peoples desire to live as we would like them to live are too prevalent in the United States today, just as they were in Norway. These “national maladjustments” are the sustenance of psychological warfare. We certainly have among us persons deluded by foreign ideologies. These persons are the sustenance of revolution.

Propaganda cannot win wars, nor can it prevent defeat, but its psychological techniques, if applied persistently and timed accurately, can be a deciding factor in battles, particularly in total war.**

Norway proves that propaganda can win the battle for time. We must understand and be prepared for warfare of extended strategy.

* Col. A. Blau, *Intellectual Warfare*, (Potsdam: Voggenreiter, 1938), quoted in *German Psychological Warfare*, ed. by Ladislav Farago, (New York: Committee for National Morale, 1941, p. 49.) Col. Blau was on the German General Staff, and this work is considered the basic German text in this field.

** F. Bertkau and H. Franke, “Intellectual Warfare,” *Handbuch der neuzeitlichen Wehrwissenschaften*, (Berlin: Gruyter, 1936). Vol. 1, pp. 105-9, quoted in *German Psychological Warfare*, p. 57.

The most powerful influence for peace today is the spiritual force exerted by a strong nation of free peoples who have the will to remain free and who are determined to assist free men everywhere in protecting their cherished freedoms.

Lieutenant General Albert C. Wedemeyer

The 11th Airborne Division in the Leyte Mountain Operation

Major Joseph B. Seay, *Infantry*
Instructor, Command and General Staff College

TODAY, most of our instruction and plans for future warfare are based on the larger operations of World War II. In general, this is sound, because the indications are that in any future war we must be prepared to attack or to defend on a large scale from the very start of hostilities. Our enemies will not permit us the time to delay with small, isolated forces while we organize and plan for a major defense or counterattack. Therefore, we must do our organizing and planning on a large scale now, with due regard to flexibility, for immediate execution on some future D-day.

On the other hand, some of the small-scale, relatively isolated operations of World War II contain many valuable lessons that are likely to be overlooked in our "total war" thinking. Those who planned and executed such operations realize their significance, and the after action reports point up these lessons. The student of war, however, has a tendency to put aside the after action reports of small operations, and thus he misses lessons that could vitally influence our concept of future operations. An example of a small operation that contains valuable lessons is the

crossing of the Leyte Mountains by the 11th Airborne Division.

The Leyte mountain operation of the 11th Airborne Division teaches two lessons that have been generally overlooked. The first is that the ground training given to airborne units, which is erroneously called highly specialized airborne unit training, would be a valuable asset to any ground combat unit. This training involves operating with little equipment and little artillery support, and planning and executing an offensive with subordinate units dispersed over a large area. Such dispersed training will be particularly valuable in atomic warfare.

The second lesson is that airborne methods can be successfully applied to ground operations. Specially built planes or highly developed airborne equipment are not essential. All units should be trained to recognize situations and problems calling for or permitting solution by airborne methods. All units should be able to execute these operations or to coordinate with the proper agencies in their execution.

The Situation

On 18 November 1944, the 11th Airborne

In the mountain jungles of Leyte in 1944, the 11th Airborne Division supplied its combat elements almost entirely by liaison planes for a month and a half, a resourceful solution to a difficult supply problem

Division landed on Leyte at Bito Beach, a narrow strip bounded on the north and south by swift, unfordable rivers, and on the west by a formidable swamp.

The general situation at the time of the landing is shown on Map 1. The 96th and 7th Infantry Divisions of XXIV Corps were in contact with the Japanese in the foothills around Dagami and Burauen. The Japanese were resisting furiously and were successfully landing reinforcements at Ormoc. Corps Field Order No. 28, received 22 November, directed the 11th Airborne Division to relieve the 7th Infantry Division in place. It further directed 7th Infantry Division to swing south, cross the mountains by the Abuyog—Bay Bay road to the west coast, and attack north to crush the Japanese between its attack and the attacks of the 24th Infantry Division and the First Cavalry Division from the north and east.

By 28 November, the relief had been completed. Patrols had been sent westward to locate trails, villages, and Japanese troop concentrations. The 511th Parachute Infantry Regiment had been alerted to spearhead the move to the west coast through the pass between Mahonag and Anas (see Map 2), for the purpose of splitting the Japanese position in two.

During this first 10 days, the rains had rendered the few roads almost impassable. US Highway 1, paralleling the coast, was never completely usable during the operation. The move of the division northward from Bito Beach to the line of departure had to be made by amphibious tractors and landing craft. Any vehicular traffic to or beyond the line of contact was out of the question.

The fighting from Burauen through the mountains to Anonang, Lubi, and Manarawat was marked by several events. Company C and the headquarters of the 511th Parachute Infantry Regiment were ambushed. C-47 planes dropped small arms and food to surrounded forces. Battalions

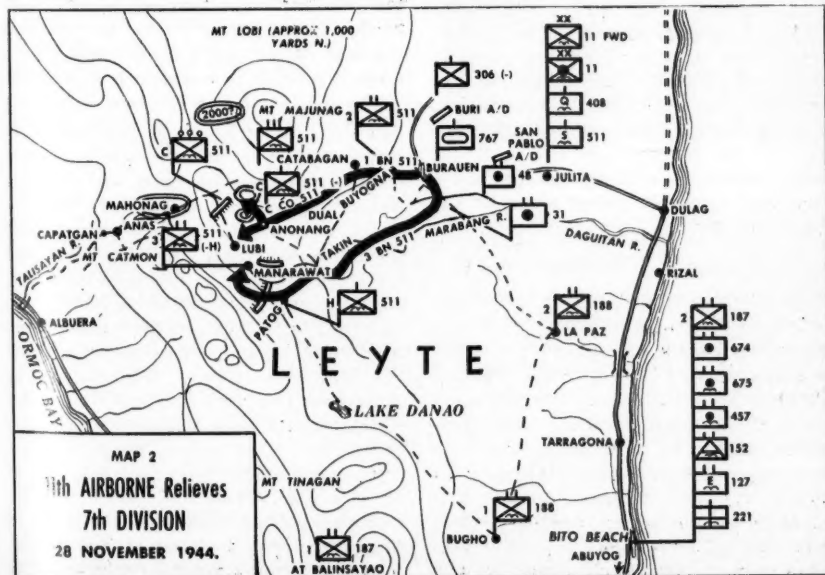
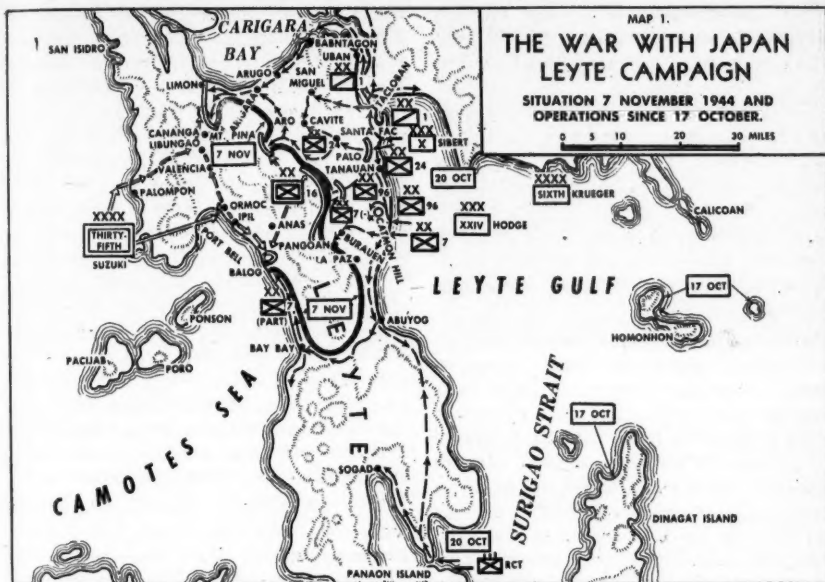
and companies maneuvered in Indian-type combat. Unusual and ingenious measures were adopted to overcome the obstacles imposed by the terrain and weather.

The Artillery Problem

By 1 December, almost all combat elements had advanced beyond range of the division artillery's 75-mm pack howitzers.

The most forward elements of the division had advanced beyond the range of the two 105-mm Battalions attached from the 7th Infantry Division. The advance to Lubi had been supported by the Corps 155-mm howitzers and 155-mm guns, but now the nature of the terrain and the lack of well-defined lines and accurate maps for patrols called for closer support and pinpoint accuracy. The division commander therefore decided to drop an artillery battery, and ultimately a battalion if necessary, into a forward position from which it could support all forward elements of the division. Manarawat—a small table top about 200 yards long by 160 yards wide, rising 150 feet above the river and surrounded on three sides by sheer cliffs—was chosen for this artillery position. From this central location, 360 degree support could be rendered the combat troops throughout the operation.

To drop one battalion of airborne 75-mm pack howitzers simultaneously would require 13 C-47 airplanes. Based on San Pablo Air Strip No. 2 was one C-47 plane, which was employed when necessary on air-sea rescue work. On 3 and 4 December, Battery A, 457th Parachute Field Artillery Battalion, was dropped on the Manarawat position by making 13 sorties with the one C-47 plane. The mountains around the table-top position forced the pilot to follow a moon-shaped canyon, make a blind turn to the right, drop his stick of troopers and equipment from a 300-foot altitude, and then zoom up sharply to the left at the end of the 200-yard drop zone. Only superior flying and the highly pro-



ficient jump mastering by the artillery battalion commander made possible the drop of the entire battery without the loss of a man or a weapon.

During this same period, the assistant division commander, the Division G-3, representatives of the other general staff sections, and a detachment from the signal company with an SCR-694 radio, were parachuted in to Manarawat to establish a division forward command post, using the division artillery liaison planes for the drops.

Manarawat became an important communications center. Six trails converged there. A portable surgical hospital was dropped in and casualties were evacuated by walking or by litter parties. A supply dump was established, using carabao caravans for transportation at first. A platoon of engineers was jumped in to clear and level a dog-leg strip that could be used with difficulty to land liaison planes to evacuate the seriously wounded to a hospital on the rear air strip at San Pablo. A platoon of paratroopers from B Company, 187th Infantry, was jumped in to guard the hospital. This released a like number of men from the 511th Parachute Infantry Regiment for duty with the regiment in its forward position. All the jumps, except the artillery battery's drop, were made from L-4 liaison planes of the division artillery.

Supply Difficulties

The carabao caravans proved inadequate for transporting supplies. They were slow and required many animals with a driver for each animal. The drivers had to be fed and guarded and did not relish the 2-day trip to Manarawat. Forward from Manarawat, the trails were not secure from the enemy and were almost impassable for carabao anyway. It became evident that the entire supply system must be revised if the combat forces were to receive adequate support. One would expect an air-

borne G-4 to consider air supply. At first glance, the picture did not appear too bright. In spite of our air superiority, many Jap planes broke through to strike our rear areas. C-47s could not fly safely without fighter cover. The prevailing low ceiling and bad weather prevented C-47 flights into the mountains for days at a time, and drop zones were so small that it was difficult or impossible to hit them flying at the speed and altitude necessary for the larger planes. One C-47, attempting an emergency ration drop to a battalion of the 511th Parachute Infantry Regiment, crashed into Mt. Catmon. The 54th Troop Carrier Wing had only five planes and facilities available on a full time basis to supply the 32d Infantry Division, which was in a situation similar to that of the 11th Airborne Division.

The 11th Airborne Division was able to secure the services of six L-5s from a liaison squadron. With these planes, the 11 L-4s organic to the division artillery, and the part-time services of the C-47 rescue plane, the division set up and operated an air supply system that was to make it possible to accomplish its mission.

The cub planes were concentrated at San Pablo Strip No. 2. A provisional air cargo resupply detachment was organized from division service units and supplies were stockpiled and packaged for cub delivery. Systematic supply runs were planned and executed. Priority was to the forward-most units in contact. The dump at Manarawat was built up as a reserve to be drawn from by carrying parties from the forward units when the weather closed in. Strangely enough, Manarawat was often open for drops at times when most of the forward drop zones were closed in. In addition, the one C-47 made all of its drops at Manarawat, because the drop zones of the outlying units were too small or inaccessible to C-47s. A 4-day level of supply was thus built up at Manarawat.

Calls for unit air supply were made to



Supplying the forward elements of the 11th Airborne Division in the mountain jungles of Leyte was a difficult problem calling for unusual measures. Carabao caravans (left, above) proved inadequate. Air supply, mainly using only small liaison planes, was tried and proved successful. Manarawat (right, above, as seen from the air) became an important communications center in the Division attack against the Japanese. Right, a man parachuting into Manarawat. Below, one end of the small air strip at Manarawat, showing some of the planes used in the unusual supply system.—Photos by permission of *The Infantry Journal Press*.



G-4, forward, at Manarawat. Priorities were established and requisitions submitted by radio to the rear where they were filled at the San Pablo dump. Here a group of lightweight men packaged the supplies, loaded the planes, and for particularly difficult drops, rode in the rear seats to push out the cargo. Free drop was used for all cargo except artillery ammunition, some fragile medical supplies, and radio equipment. Artillery ammunition was dropped entirely from the C-47 onto the gun position. Pilots flew from daylight to dark, 2 to 12 hours a day, in fair and bad weather. On many days, a thick gray fog hugged the mountain areas, and the pilots had to circle to find an opening near the drop zone. Once under the ceiling, they made the drop and spiraled upward, hoping to break out on top before encountering a mountain peak.

Japanese Attack

On 6 December, the Japanese struck the division rear area with an airborne attack on the dump at San Pablo Strip No. 2, San Pablo Strip No. 1, and the Buri Strip. The Japanese plans, it was learned later, had been a coordinated attack with the 26th Japanese Division moving eastward through the Mahonag-Anas pass, with the remnants of the 16th Japanese Division moving south and east from the Mt. Lobi area. Both units were to converge on Burauen at the time of the drop.

One regiment of the 26th Japanese Division got through the pass, but it attacked Burauen 5 days late. It was repulsed with heavy losses and scattered in the hills west of Burauen, to starve in small groups or be annihilated or captured by 11th Airborne Division patrols. The 16th Japanese Division assembled about 1,500 men at a point 1,500 yards from the Buri Strip. These troops attacked, and several hundred of them reached Buri Strip, dug in, and had to be destroyed by a battalion of the

187th Infantry and other units over a period of 5 days.

The airborne assault caused more trouble. It came at dusk on the 6th. The surprise was complete, and the Japs captured and held most of the strip until the division could organize its engineer battalion, signal company, and headquarters battery of the division artillery for a counterattack. The division engineer led the counterattack, which was soon reinforced by the 674th Field Artillery Battalion. After 2 days, the strip was cleared.

Effects of the Attack

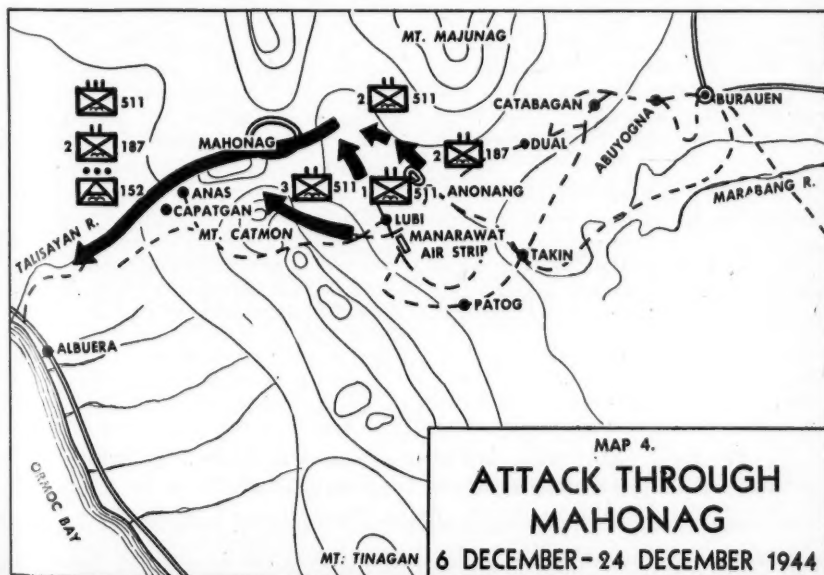
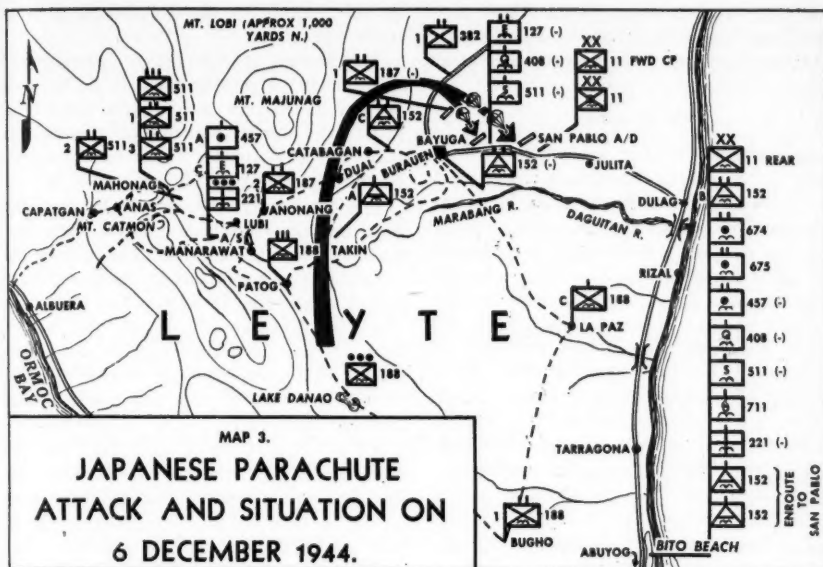
Four days after the attack, the liaison planes were partially repaired or replaced and the supply system was back in operation.

The interruption in the supply was felt immediately and severely by the troops in the mountains. Troops in the forward positions had little or no reserves. The Manarawat dump was almost depleted before aerial resupply could be resumed.

Just when operations got back to normal, the weather became even worse. Open skies were rare and the pilots had difficulty in finding holes in the overcast.

When the weather opened up again, the attack was vigorously renewed. The situation was a precarious one from the supply standpoint and the sooner the operation was completed the better. The division commander regrouped his forces, heavily weighted his main effort, and pushed through the Mahonag-Anas pass to the Ormoc Bay area on the west coast.

Clearing the Leyte Mountains was by no means easy. Strong points were reduced by companies, battalions, and composite groups, and by coordinated attacks by battalions. The last of these major strong points was at Anonang, which was captured in the Battle of Purple Heart Hill on 26 December 1944. The division then began to move back to Bito Beach to prepare for its next operation—the division



combined amphibious-airborne attack into Southern Luzon to strike the Manila garrison in the rear. This seemed easy after Leyte.

The Lessons

An analysis of the air supply operations in the Leyte Mountains shows that for short hauls of 25 to 50 miles in mountainous terrain liaison planes are actually superior to C-47s. This estimate considers the cub's rapid loading and take-off time from crowded strips, its ability to use improvised strips, and the inability of the larger planes to come in low through the mountain passes and to drop their cargo on small drop zones. Further, enemy planes do not, as a rule, attack the cub planes, while C-47s must fly with fighter escort. The types of cargo that can be handled by the liaison craft are food, small arms, automatic weapons ammunition, 60-mm and 81-mm mortar ammunition, communications equipment such as radios and radio batteries, and medical supplies and equipment. Artillery ammunition must be carried by C-47 and parachuted to the drop zone. This will normally be possible, because the area that is large enough for the drop of a battery of artillery is also large enough to hit with a C-47 drop of ammunition.

As a result of this successful air supply operation, the division commander recommended that an L-5 squadron be attached to each airborne division. Not only would these planes prove invaluable in operations similar to the one described here but also

for air supply in the airhead in an airborne operation.

The 75-mm pack howitzer proved itself valuable far beyond expectations. The one battery which was dropped into the mountains fired many thousands of rounds on targets that could not be hit by the larger calibers back on the plains.

The air supply system used by the 11th Airborne Division in the Leyte mountain operation was not entirely satisfactory because of the small number and low capacity of planes available and the uncertain weather. The attachment of an entire liaison squadron to the division would have helped. Troops were often on half or third rations for 1 or 2 days at a time. When forward drop zones were closed in, forward units had to send carrying parties to Manarawat for supplies, depleting the fighting strength of the units. Existence was on a hand-to-mouth basis and support was never certain, which put the commander in a very undesirable position.

But the division, nevertheless, had a mission to accomplish. The remarkable feature of the operation is that the division did supply its combat elements entirely by air for a period of a month and a half, using only 17 liaison planes, and a single C-47 plane occasionally. This support enabled the division to accomplish its mission. It advanced through the jungle-covered mountains of Leyte in extremely bad weather, overcame an enemy that was well dug in and adequately supplied, cut the Japanese defenses in two, and destroyed all Japanese forces in the area.

The troop carrier pilots, and their associates in combat, the airborne troopers, will play the leading role in future aerial combat.

Major General James M. Gavin

AN INTRODUCTION TO THE ECONOMICS OF MOBILIZATION

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Former Instructor, Command and General Staff College

The Problem

IN WAR, the belligerent with the greater industrial potential has an enormous advantage over its enemy. A nation whose economy in peacetime employs efficiently and on a large scale an abundance of human and material resources is also strong in its industrial potential for war. But even the biggest human and material resources and the most advanced industrial technology do not of themselves guarantee victory. In some respects, specific preparations in the fields of resources and techniques must be made a part of a nation's peacetime security measures. For example, stock-piling of raw materials, development of substitute materials, and provision of certain facilities and equipment may be required.

Beyond all this, however, a nation's ability to shift its economic system quickly and efficiently to war conditions is of vital importance. The industrial requirements of war are so different from those of peace, and they are so urgent and large, that (except for nations constantly on a war footing) a special organization of the industrial system for war is necessary. That is, the potential of population, materials,

and technology must be organized and operated for the particular purposes of war. The ability of a nation to solve this problem is a big part of its over-all war capabilities.

The purpose of this article is to present briefly certain of the basic organizational and control requirements of a war economy.

Central Control

Few persons today, other than conscientious objectors, dispute the government's obligation to take charge of military manpower mobilization. Left to themselves, individuals would not volunteer their services quickly enough nor in sufficient numbers to meet the needs of the armed forces. Moreover, the uneven flow of volunteers from various walks of life would tend to disrupt industries whose continuous operation is essential to the war effort. Similar considerations point to the need for governmental mobilization of the industrial labor, materials, and machinery of the nation.

Put in simplest terms, the argument for national governmental control and coordination of industrial mobilization in wartime rather than dependence upon indi-

The ability of a nation to shift its economic system efficiently and quickly from normal peacetime pursuits to the conditions of war is one of the big factors in its over-all capability of waging successful war

vidual actions is this: The decisions made by individuals for themselves, however reasonable they might appear from the individual standpoint, are likely to be insufficient, or too slow, or wrong, from the standpoint of the nation as a whole, when the nation is faced by the overwhelming problem of survival and victory in war.

Mobilization Tasks

What, then, are the tasks of national government in economic mobilization for war?

The aim of a war economy is to insure the maximum utilization of the nation's resources of manpower, materials, and equipment in the effort to defeat the enemy. In order to make an adequate supply of manpower available to the armed forces, and, at the same time, to allot a sufficient number of workers to the production of war materials and essential civilian goods, it is necessary to utilize all available labor power. Labor must be directed into the necessary production fields through a system of priorities and drafts.

In order to curtail civilian production and expand war production, the flow of raw materials must be controlled so that essential production is adequately supplied. As an aid to financing the war and the smooth operation of the economic system, it is necessary to establish a system of price controls. The rationing of scarce civilian items is imperative in order to insure the maximum efficiency and morale of the population. In addition to stressing domestic war production, it is also necessary to undertake measures that will lower the war production of the enemy—that is, to engage in economic warfare.

To sum up, the essential tasks in economic mobilization are:

1. To allocate properly labor, materials, and facilities.
2. To curtail civilian production and expand war production.

3. To control prices and ration scarce goods.

4. To undertake economic warfare.

Increasing War Production

When war comes, there is a tremendous increase in the demand for many civilian and military goods. Yet, in the face of this rising demand, a number of obstacles which may put a heavy brake on industrial output are likely to arise if left alone. One such obstacle appears when there is a heavy-handed general mobilization of manpower for the armed forces. That is, many skilled workers may be withdrawn from mines, factories, and railways at the very time that their skills are most urgently needed in the operation of war industry. Their places may be taken by older and younger workers, by women, and by recruits from non-essential industries. But these people will at first be less efficient than the former workers. At the same time, a speed-up of labor and higher prices of goods may lead to unrest, high labor turnover, and reduced productivity.

Steps have to be taken to counteract all this. For one thing, over-mobilization of manpower for the armed forces must be avoided. On the basis of a detailed study of national manpower requirements, certain age groups and certain occupations must be made exempt from military conscription, at least for a time. Furthermore, activities of labor and management that hinder the expansion of essential production have to be restricted. It will probably be necessary to recruit unskilled workers, older men, women, and young people for work in war industries. These new workers must be trained. If they are brought to centers of industry, they must be housed. At the same time, labor must be withdrawn from the less important trades and industries. Obviously, if the pressure of war is heavy enough, conscriptive measures will be applied as much

to industrial manpower as to military manpower.

It is also necessary that the production of non-essentials—like elaborate houses, pleasure automobiles, and jewelry—be curtailed and that the output of munitions, machines that make munitions, and other essential supplies be greatly expanded. The prime means to this end is a system of priorities. Under a priorities system, a specific ranking is attached to the various industrial orders, processes of production, and supplies of materials, in accordance with a scale of their importance to the war effort. Furthermore, under this system, materials, transportation facilities, and loans are allocated by the government to the various industries in accordance with the importance and urgency of their war production.

War Finance

The government needs a vastly increased amount of money, or purchasing power, during war. How can the government get this purchasing power? It can be obtained either by borrowing or taxing.

Outright, straightforward taxation is the most logical method. The taxpayer's purchasing power is definitely and quickly curtailed. This has the effect of reducing non-essential consumer demand for goods that should go into war production.

But taxation has its limitations. It is a slow way for the government to get money. In war, the government needs money in a hurry. This is the main reason—together with the largely incorrect notion of many people that war can be financed less painfully by means other than taxation—that governments in wartime resort in large measure to borrowing.

The big danger in large-scale borrowing, or loan financing, is not that the government has to pay interest on war bonds and eventually pay the principal back. The main trouble is that it makes for price inflation. Most of the purchasing power

that the government gets by borrowing is provided by the banks, and it is an addition to the purchasing power already available to the country at large. Moreover, the government bonds held by the banks may be used by them as a basis for expanding their credits to individuals and business firms. Thus, there is a tendency for the total purchasing power in the nation to rise more rapidly than the amount of goods available for purchase.

The name we give to this situation is inflation. Prices of goods and wages of labor rise, some more, some less. The government, business firms, and individuals compete for labor, raw materials, and finished goods. Some people stand to profit from the mounting prices. Others, whose incomes lag behind the rise of prices, make heavy sacrifices. These are the people who live on more or less fixed incomes—receivers of rent, interest, salaries, and, to a smaller extent, wages. In other words, inflation results in a hidden kind of taxation, a taxation that is uneven and haphazard in the burdens it places on the people.

Much the same thing happens if the government goes in for the old-fashioned method of obtaining more money simply by grinding more dollar bills out of the printing presses. Currency inflation is an easy but an inequitable and dangerous method of war finance. It is dangerous because it leads to inefficient production and low morale. The conclusion is that, if the government in wartime supplements tax measures with loans, it must take steps to prevent inflation.

Price Controls

Obviously, it is desirable to avoid the spiral of higher and higher prices. Rising prices of munitions will complicate the problems of war finance. Rising prices of essential consumer goods will lead to labor unrest and wage increases. Higher wages mean increased costs of production, and

manufacturers will soon raise their prices further. The changes in prices will cause many economic and social troubles. These reasons make price control necessary. By the same token, wages must be regulated, in order to eliminate labor disputes and to hold down labor turnover in industries.

Under a system of price fixing, the quantities of goods demanded will be in excess of the quantities supplied at the fixed prices. That is, there will not be enough goods available to meet all demands. In order that the scarce goods may go to the people and industries that need them most in the interests of the war effort, action must be taken to withhold them from less important ones. This is achieved by means of priorities. In other words, the systems of price control and of priorities supplement each other.

Rationing

When the supply of consumer necessities—food, clothing, shelter—falls below prewar levels, rationing of these necessities has to be introduced so that they will be distributed fairly. Otherwise, people with plenty of money, old friends of the grocer, and persons who have nothing better to do than shop will find means of getting more shoes and meat than people who have less money and time and more patriotism. Although rationing is necessary to the fair distribution of scarce goods in time of war, it leads to black market operations, by which purchasers obtain goods not available at ceiling prices or in excess of the quotas allotted to them. No government has succeeded in eliminating the black market entirely, and it is likely to persist until free trading is restored.

Economic Warfare

In addition to these measures taken to maximize domestic war production, it is also necessary to undertake measures that will lower the war production of the enemy—that is, to engage in economic

warfare. Economic warfare is another aspect of military economics. Essentially, economic warfare attempts to reduce the enemy's war potential by destroying or capturing the materials and facilities necessary to his war effort and by blocking the movement of supplies to him from abroad. It requires a blending of military and economic measures. Air power has increased to a tremendous extent the range over which military measures of economic warfare may become effective. At the same time, an ever-wider sector of the economic system has been placed in the service of war, resulting in an increase in the objects of economic warfare and in a country's vulnerability to its effects.

Aspects of Economic Mobilization

It is important for military men to be aware of the importance of these measures of economic mobilization. The ability of a nation to use them effectively is one of the main elements in its ability to make war.

We should bear in mind that a totalitarian country such as the Union of Soviet Socialist Republics has a big start on us in economic preparation for war. Tick them off: labor conscription; directing workers, materials, and funds to the industries that the government believes most important from a national standpoint; severe labor discipline; curtailment of the output of consumers' goods; and price control. Totalitarian nations have these things, not just in wartime, but all the time. Their people are accustomed to them, the government officials know how to operate them. Industrially, such a country can go to war overnight.

It is not surprising that nations whose economic system are relatively free in peacetime often find themselves ill-prepared when war begins. The British and French appeasement of Nazi Germany before 1939 came, at least in part, from a recognition that neither their armies nor their economies were ready for war. The

United States entered the last war somewhat better prepared. The war in Europe had been in progress for some time, and Britain and France had placed with us large orders for munitions. American military production was further stimulated by the lend-lease program. But even with this advance preparation, the United States was on the strategic defense for many months after the Pearl Harbor attack. But for the oceans surrounding Britain, the Dominions, and the United States, it is unlikely that any democracy anywhere in the world would have survived the attack of the Axis powers.

We must remember this lesson. We have been saved in the past by the precious gift of time and space that enabled our people to beat their plowshares into swords *after* war had been thrust upon them. But modern weapons are destroying our old safeguards of time and space.

However, as World War II has shown, if democratic countries can withstand the initial shock of war, and if they are not utterly surprised by the enemy, they can develop both their military and their economic power as effectively as any autocratic regime.

The major defects of past industrial mobilizations have been inexperience of civilian plant operators in producing purely military items, inefficient allocation of material due to competition between the services and between them and private enterprise, delays caused by retooling, by shortage of skilled manpower in some areas while surplus existed in others. The fundamental defect, however, was the lack, during peacetime years, of coordinated preparation by the industrial and military establishments for the future effort that would be demanded of them jointly.

To remedy past defects and assure a quick, effective wartime conversion, legislation should be enacted that will permit wartime allocation of materials in the proper measure for key plant operation; control over manpower to eliminate plant raiding and work dodging; a system of priorities that will reduce competition between essentials and nonessentials; and the placing of educational orders that will keep industry acquainted with military developments.

General of the Army Dwight D. Eisenhower

A Progress Report on the United States Constabulary

Captain H. P. Rand, *Field Artillery*

AN EARLIER article in the *MILITARY REVIEW* discussed the history, organization, and operation of the United States Constabulary from the time of its inception in early 1946 until the end of the first 6-months' period of operation.* Many changes have taken place since then to affect the structure and operations of the Lightningbolt force. However, the name, primary mission, distinctive uniform, and insignia remain as in the past. The purpose of this article is to bring readers up-to-date.

Personnel and Organization

Early in 1947, the redeployment of enlisted men took on large proportions and no compensating shipments of replacements arrived from the Zone of Interior. As a result, the Constabulary found itself greatly understrength. In order to alleviate this situation, it was decided to make one troop in each squadron inoperative, retaining four line troops and a headquarters troop as the basic organization of the squadron. In addition, the light tank troops, which had been organic in all regiments, were inactivated. The reduction of line troops to four per squadron was in line with a new table of organization for which early War Department approval was anticipated.

A heavy burden fell on the Constabulary in January 1947, when the headquarters

took over the functions of the Third United States Army and many Third Army tasks became its responsibility. During February, the headquarters moved from Bamberg to Heidelberg, which had been Third Army headquarters. Third Army in Europe phased out on 15 March 1947, and Constabulary headquarters returned to full-time duty on its primary mission.

A general Theater reorganization took place during this same period. Certain administrative functions, previously performed by the Base Sections, were now concentrated under newly organized units, the Military Posts. Constabulary Headquarters functioned as headquarters of the Second District of Military Posts, the 1st Infantry Division serving as headquarters of the First District. The dividing line between First and Second Military Districts was the geographical boundary between the German states of Bavaria (First District) and Hesse and Wurttemberg-Baden (Second District). It is to be noted that no such dividing line existed between the area of the United States Constabulary and the 1st Infantry Division as far as their respective primary functions were concerned. This additional task remained with Constabulary Headquarters until the Districts were phased out in the spring of 1948 and the Military Posts were placed directly under European Command (EUCOM).

In the spring of 1947, the Theater received a cut in troop strength, and the

* "Mobility, Vigilance, Justice," by Lt. Col. A. F. Irszyk, March 1947.

Constabulary had to absorb its share. The Constabulary was called on to submit a new table of organization, based on a reduced troop ceiling. The plan which was put into effect provided for a substantial decrease in the number of units within the Constabulary. One brigade was eliminated, leaving a total of two. Four regiments were deactivated, leaving five. Of 27 squadrons, 11 were deactivated, leaving 16. These major changes in organization were put into effect in several phases, beginning 1 July 1947. In order to retain units by historical precedence, a general renumbering process ensued which shifted numerical designations from squadron to squadron. The only squadron unaffected by this change was the 1st (Blackhawk) Squadron, a direct descendant of the famous 1st Cavalry Regiment.

Under the revised organization, the 1st

Of the five remaining regiments one, the 2d, was concentrated in a single location. A light tank troop was reactivated for it and a recoilless rifle troop added. The squadrons of the other four regiments were located in different towns with specific operational areas assigned to each. The four remaining line troops in each squadron were all organized alike as mechanized troops, thus eliminating the motorized troops which existed formerly.

Generally, this organization remained unchanged until a "remanning table" was published in April 1948. This provided for a reorganization of all line troops without making any changes in major items of equipment. The reason of this reorganization was the fact that the role of the Constabulary in the Army of Occupation had begun to change. During the first year and a half of its existence, the

Since early in 1947, the role of the United States Constabulary in the Army of Occupation in Germany has been gradually shifted from that of a zonal police force to military training and normal military duties

Brigade controlled the same area as the Second Military District (states of Hesse and Wurttemberg-Baden) and the 2d Brigade, the area of the First Military District (state of Bavaria). The reorganization did not entail any change in the operational mission of the Constabulary. This mission was to "maintain general military and civil security; assist in the accomplishment of the objectives of the United States Government in the occupied US Zone of Germany (exclusive of the Berlin District and Bremen Enclave) by means of an active patrol system prepared to take prompt and effective action to forestall and suppress riots, rebellions, and acts prejudicial to the security of the US occupational policies and forces; and maintain effective military control of the borders encompassing the US Zone."

Constabulary was primarily a police force. Now the emphasis was shifting to a purely military mission which required changes in training, planning, and organization. Under the remanning table, the line troop was composed of troop headquarters and line platoons of reconnaissance, rifle, and weapons type. Each reconnaissance platoon consisted of identical sections of $\frac{1}{4}$ -ton trucks and M-8s. The rifle platoons comprised rifle squads, riding in $2\frac{1}{2}$ -ton trucks, and light machine-gun sections of two squads each. The weapons platoons comprised mortar squads and recoilless rifle sections. New weapons, in addition to the recoilless rifles, included the rocket launcher and rifle grenade launcher.

The practice of arming each trooper with a pistol, in addition to a second individual weapon such as a rifle or subma-

chine gun, was discontinued under the remanning table. Only one weapon to a man was the new basis of individual arming. Mortars, rocket launchers, and grenade launchers were also authorized for all headquarters and special troops.

Constabulary Headquarters was forced to move from Heidelberg to Stuttgart in February 1948, to make way for Headquarters, EUCOM, which gave up Frankfurt to the Bi-zonal Administration.

With the ever-decreasing need for a special-type police force in the European Command, the summer of 1948 found the Constabulary undergoing still another reorganization. This time, the changes were radical. Regiments were reorganized as armored cavalry. One regiment remains concentrated in one location; the others are reinforced by Constabulary squadrons, as previously organized. These remaining Constabulary squadrons do whatever police work needs to be done while the armored cavalry units concentrate on training.

The new armored cavalry regiments are organized generally under Department of the Army tables. This latest reorganization was accomplished during the summer and fall of 1948 but was not officially effected by general orders until 20 December. On that date, the first announcement of the changes was released to the press.

Under this latest plan, the brigades assume functions comparable to those of a combat command in the armored division, and the brigade headquarters have been reorganized to fit this new function. In due time, it is anticipated that special troops assigned to the Constabulary will be attached to the brigades. As of the early part of 1949, the following special units, other than the above-mentioned basic units, are organic in the Constabulary: a field artillery group with 4 battalions; 2 engineer combat battalions (1 of which was the first Negro Constabulary unit); several smaller engineer units;

ordnance maintenance and truck outfits as well as one horse troop.

Operations

Operational tasks have changed with the peaceful and almost uneventful progress of the occupation. No civil disorders have materialized, the German population has shown no animosity toward the United States Occupation Forces, and, generally, the German police forces have assumed responsibility for internal security to such an extent that Constabulary operations could be materially curtailed. Ever since the reorganization effected during mid-1947, the emphasis of Constabulary operations has been on intelligence collection and liaison with other agencies, such as Counter Intelligence Corps, Criminal Investigation Division, Military Government, and German police. Occasional patrols show the German populace that the Lightningbolt force is still around.

The gradual withdrawal from intensive operations began in early 1947, when a Theater directive indicated the Theater Commander's desire that all military units occupy former German military installations (*kasernes*) and, wherever feasible, withdraw from large, overcrowded German cities. This resulted in a progressive concentration of Constabulary units until all were entirely consolidated by squadrons, except for a few small detachments on border posts and other special places.

A very unexpected and pleasing accompaniment of these withdrawals from many locations were the many complaints from the population over the disappearance of the Constabulary men. Many a German felt, and many officials expressed it openly and officially, that the departure of the yellow-scarved troopers had given encouragement to criminal elements.

Similarly, of course, many a Military Government liaison and security officer requested that the Constabulary return to his area to assist him and the German

law-enforcement agencies in maintaining low crime rates and generally in giving everyone a feeling of security. Since the Theater Commander's policy was and is to hand the internal functions back to the Germans, none of these calls for return were granted.

The zonal border security functions which the Constabulary assumed at the beginning of its operations were turned over to the German border police forces during the fall of 1947. The Germans were given the responsibility for keeping illegal crossings of the border to a minimum. Allied personnel alone remained the responsibility of the Constabulary, since the German police have not as yet been given authority over them. With the complete opening of the British and French interzonal boundaries during 1948, the last remaining Constabulary border posts there were withdrawn. Only on the Russian border are permanent check points for Allies maintained. A few "international trains," operating across national borders, are still spot-checked by the troopers to collect information on the effectiveness and efficiency of German controls.

During 1946 and 1947, the Constabulary made a continuous effort to help German law-enforcement agencies to regain their operational know-how and prestige, which they had lost while operating as stooges for Hitler's Third Reich. This was accomplished by joint patrols with German police, by having German police present at check points, and by loaning them equipment, such as vehicles and radios. While no specific orders have been issued discontinuing this practice, it was found no longer necessary, since the German police agencies have become more and more self-sufficient. The equipment, as well as the personnel available to them, has improved in quality and quantity to an extent where the German police are not dependent on Constabulary assistance any longer. At the present time, the tendency

is to turn over some of the US Zone internal security responsibility, formerly belonging exclusively to the Constabulary, to the Military Posts who have military police and service troops at their disposal to cope with any civil disorders. The tendency is clearly a return of the Constabulary to "normal" military duties.

Many observers attribute the uneventful and smooth execution of the occupation to the Constabulary's operations. If it had not been for the preventive actions of the Constabulary during 1946 and 1947, for their ever-active patrols, their effective intelligence collection, and their close liaison with local authorities, the internal situation in the US Zone of Germany might well have been entirely different. It is difficult, if not impossible, to fully assess the actual effect of the Constabulary. However, in fairness to the tremendous effort made by the Constabulary, this speculation should be part of the record.

During a typical month in 1946 and 1947, anywhere from 400,000 to 1,000,000 miles were travelled by foot, motorcycle, horse, and vehicular patrols of the Constabulary. From 8,000 to 15,000 road blocks were established, and from 1,500 to 2,700 L-5 liaison plane missions were flown. These operations were accomplished from more than 200 stations. Today, all Constabulary units occupy only about 20 locations.

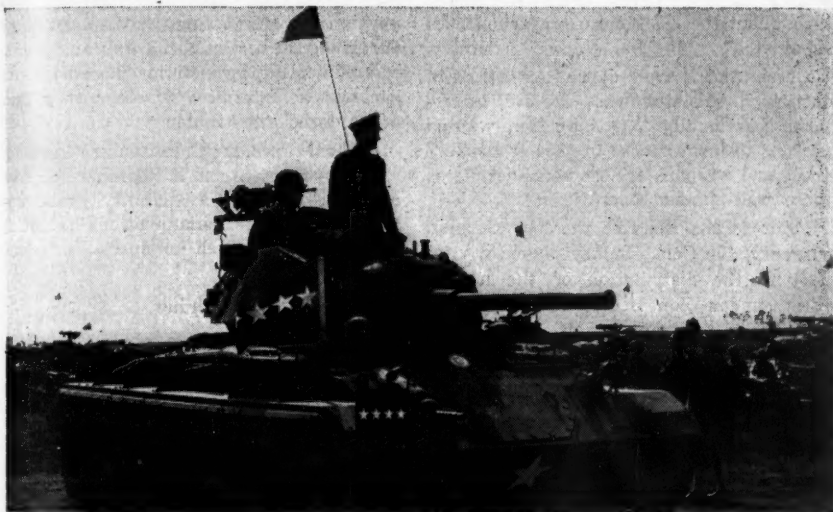
As in its early days, the Constabulary is still being used for unusual missions. At one time, two full squadrons were employed in a 2-day operation to comb an area for a large number of AWOL soldiers known to be in hiding. A brigade headquarters was charged with this mission, since the area involved covered two different regimental zones. Close coordination with German police, CIC, and Military Government was effected and the mission executed without incident.

During a recent search for a murderer, the entire Constabulary was employed

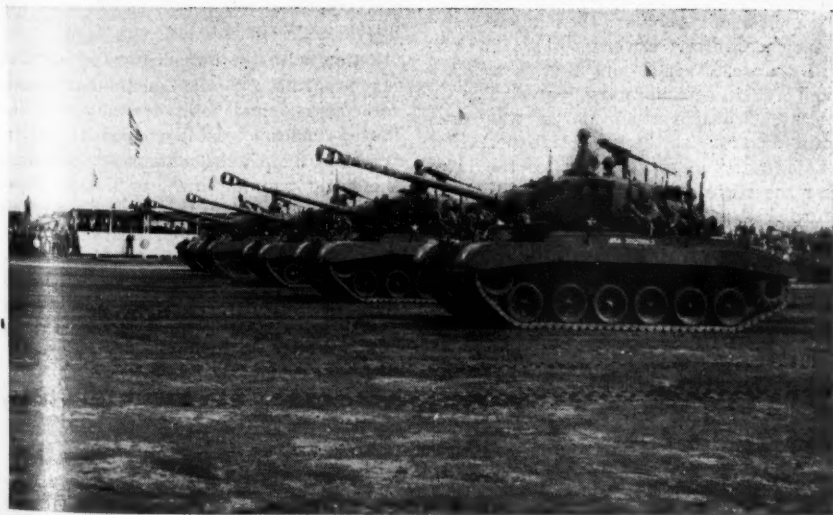


Since 1947, the activities of the US Constabulary in Germany have been shifting gradually from police work to military training. Above, Major General I. D. White, Commanding General of the Constabulary, inspects a firing range at a M-26 medium tank training school at Vilseck, January 1949. Left, men of the 2d Constabulary Brigade search a displaced persons camp at Windsheim in May 1948, during an actual raid to recover contraband. Below, men of Troop B, 16th Constabulary Squadron, supported by M-8 tanks, assume a riot formation during field practice maneuvers in Berlin in February 1948.—US Army photos.





On Army Day, 1949, the 6th Armored Cavalry (US Constabulary) staged an impressive review at Grafenwohr. Above, General Lucius D. Clay, CG EUCOM and Military Governor, is shown "trooping the line." Below, a platoon of M-26 medium tanks, carrying men of the 370th Infantry Battalion, passes the reviewing stand.—US Army photos.



setting up road blocks and check points throughout the US Zone to apprehend the criminal.

Check and search operations to clean out known areas of crime are still undertaken occasionally. Anything from wanted persons to large stocks of "black market" goods and weapons are the usual results of these well-planned operations.

Prior to the issue of the new German currency, the Constabulary played a vital part in the distribution of the money. First, under Top Secret orders, details were called to Frankfurt at irregular intervals to assist in the transport of the boxes containing the money from the train to the vaults of a bank. To avoid security breaches, no officer or enlisted man was employed on these operations more than once. After the 24,000 boxes were safely deposited, over a period of several months, the task of distributing them again was tossed into the Constabulary's lap. Due to the geographical proximity of one of the brigade headquarters, the task was turned over to the brigade. The planning was difficult because of the Top Secret classification of the operation and the many agencies involved. Military Government was in overall charge. French and British military and civilian agencies participated. The US Army Transportation Corps was committed to furnish the truck transportation. An infantry regiment supplied the labor for the stevedoring. Military Police units furnished local security. All of these, as well as housekeeping units, had to cooperate during the planning stage. The operation was executed smoothly and efficiently, the Constabulary employing a total of 200 "jeeps," 100 officers, and 500 enlisted men. A total of some 50 convoys were organized in Frankfurt and dispatched throughout the occupied areas. Every Constabulary vehicle involved was equipped with a machine gun and every convoy had a minimum of two radio sets. CIC personnel attached to the Constabu-

lary established check points for the convoys on the roads. Some 50 L-5 airplanes furnished an air umbrella day and night, communicating by radio or flags with the convoys to determine whether they had encountered any trouble.

Several times, the Constabulary has been called upon to assist in searches for lost aircraft. Its ready availability, great mobility, and fine communications facilities lend themselves well to special missions of this type.

Training

As the concentration of Constabulary squadrons commenced early in 1947 and the emphasis began to shift from police work to military training, the life of the average trooper underwent decisive changes. In the past, he had spent the bulk of his time on patrols, or at check points, speed traps, and other locations. Now he began to receive an ever-increasing amount of training. For a long time, due to the large turnover in personnel, the training was concentrated on perfecting the individual soldier. Basic subjects were repeated again and again, with emphasis on weapons firing.

Later, with the introduction of a training program for all Constabulary reinforcements, small unit training was initiated and successfully carried out. In the fall of 1947, the platoon was declared the basic training unit, with only occasional work under troop and squadron control. The reason for this was mainly the decision on the part of the commanding general that junior officers and non-commissioned officers of all grades needed the training in their jobs as commanders and leaders.

Not until the spring of 1948 did the Constabulary attempt major unit tactical training. Troop exercises were conducted in which both reconnaissance (cavalry) and dismounted (infantry) problems were executed. Units of troop size were ordered

into the field for periods of 1 to 2 weeks to become accustomed to field life and to carry out troop problems. The results of this training cycle were very gratifying. Along with the tactical improvements in all units, an increase in morale was noted throughout. Reenlistment figures went up, and deficiency reports went down. During the summer months, most elements of the Constabulary participated in field maneuvers from 1 to 3 months' duration at Grafenwohr, one of the former German Army's largest maneuver areas. Several joint exercises, from CPX's to full-scale maneuvers, were held with the 1st Infantry Division, which spent the entire summer there.

With the 1948 reorganization to armored cavalry accomplished, the divergencies in tactical doctrine which existed during the early days are bound to disappear. With a non-standard type of unit under the command of officers of all ground force branches, there used to be a good deal of disagreement as to how to employ the mechanized troops of the Constabulary with their $\frac{1}{4}$ -ton and M-8 vehicles. Some units employed their outfits dismounted, others used armored cavalry tactics, still others developed a doctrine all their own. The new armored cavalry type of organization eliminated this problem.

Of course, a period of retraining was needed to acquaint officers and men with their new equipment and indoctrinate them with armored cavalry tactics. All regiments operated tank training centers during the retraining phase, which will be climaxed during the maneuver season at Grafenwohr this year.

Intelligence

Since the Constabulary is the only major force in the European Command whose units are spread throughout the US Zone of Occupation, with area security responsibility for the entire zone, it is in a better position than other units to collect zone-

wide intelligence and to evaluate it. The intelligence net established by the Constabulary is exemplary, and its intelligence reports are of the greatest value to the Theater G-2. There are intelligence NCO's in each line company to keep the men "intelligence-conscious" at all times. Weekly classes on intelligence are prescribed to impress constantly on the troops that each of them is a potential agent. In addition to organic personnel, the Constabulary has various intelligence agencies attached to it. Through daily spot reports, as well as weekly intelligence summaries and other periodic publications from all regiments, the intelligence net functions uninterruptedly.

Whenever special conditions indicate particular areas of intelligence interest, the flexible system of coverage is adjusted to concentrate on the desired spot, and appropriate measures are taken to cope with the situation. Thus, for example, reports may indicate unrest among the population in certain towns. As a result, a show of force of armored vehicles will quickly and effectively quiet the restless populace. When strikes occur or undesirable political activities increase, intelligence agents are concentrated and the frequency of reports is stepped up. Thus, by one means or another, the Constabulary keeps abreast of any activities in the zone which may threaten internal security.

The Constabulary School

The Constabulary School at Sonthofen undertook the teaching of non-Constabulary subjects and of non-Constabulary students during 1947. In the early days, the School had devoted itself entirely to improving the standards of officers and enlisted men specifically for Constabulary work. Later, it took up general subjects, such as courses under War Department Circular No. 9, a Military Police course, and various other subjects, but in June 1948, the School was closed and became

available for the headquarters of the Field Artillery Group.

Commanders

The Constabulary's founder and leader in its early days was Major General Ernest N. Harmon. He relinquished command on 1 May 1947 to Major General Withers A. Burress, who had commanded the 100th Division and had been Theater G-2 immediately preceding his Constabulary assignment. General Burress left the force in April 1948, and turned command over to Major General Louis A. Craig. The present commander is Major General I.

D. White, who succeeded General Harmon during the war as commanding general of the 2d Armored Division.

The two Brigades have experienced only one turnover in commanding generals. In the 1st Brigade, Brigadier General F. B. Prickett commanded from the activation until his return to the United States in November 1947; his successor is Brigadier General Arthur G. Trudeau. The 2d Brigade was commanded by Brigadier General Hobart R. Gay until his redeployment and relief by General Edmund B. Sebree.

The Army must not be considered as unavailable for any other role than battle or preparation for battle. There are many secondary roles which make the Army an asset to the peacetime life of the nation without sacrificing our readiness for war. An outstanding current example is the occupation and military government of conquered territory. Of course, this was at its inception a purely military role. It was a part of fighting the war. Since VJ-Day it has been a continuation of war or aftermath of war: a vital element in the struggle to win the peace. The Army has been kept on this job partly because it was there, partly because no other government organization is able to take its place, and partly because the deteriorating international situation has dictated the advisability of risking only military forces in such exposed positions. However, I believe the record of Army administration in both Germany and Japan has been not only a testimonial to its versatility and adaptability but also a complete rebuttal of the charge that the American Army is militaristic in its approach to the civic problems which fall to its responsibility in Military Government.

General J. Lawton Collins

The Use of Psychology by Leaders

Lieutenant Colonel Horace E. Townsend, *Infantry*
Instructor, Command and General Staff College

KNOWLEDGE of human behavior is a requisite of leadership. Man is a fundamental instrument of war. Other instruments may change, but he remains relatively constant. Unless his behavior and elemental attributes are understood, gross mistakes will be made in planning and executing military operations.

Therefore, the military commander must know his men. He must be able to mold the behavior of all under his command into a singleness of purpose and effort. This result will not just happen. The desired behavior must be thoroughly planned and systematically promoted. Techniques must be selected and applied with an understanding beforehand of the behavior which will be elicited in response.

Understanding Human Behavior

There are two ways in which the military leader can acquire the requisite knowledge of human behavior.

The first of these is through experience in actually commanding men. Since the beginning of military history, commanders have used this method to acquire a simple, empirical understanding of human behavior. In addition, through long experience in command, they have become skillful in applying this knowledge to build and fight armies. There is no better

method of acquiring an understanding of human behavior than by actually commanding men.

The second method of acquiring an understanding of men is through study. However, effective learning depends on knowing what and how to study. The experiences of others may be studied. Older and more experienced leaders can teach the younger with less experience. This method has limitations. Unfortunately, experience cannot be completely transferred to the unexperienced. Methods, or techniques, can be taught, but the requisite understanding of behavior essential to proper selection and application of techniques still remains to be acquired by some other means.

The subject of human behavior can be studied *per se*. This scientific study of human behavior is known as psychology. Psychology is knowledge of human behavior acquired by scientific means. It is information secured by systematically collecting, investigating, classifying, and formulating facts about human behavior and then using these facts to establish general truths, or laws, governing behavior. In the absence of experience in command, the study of psychology provides a limited understanding of what the soldier thinks and why he behaves the way he does.

The military commander must know his men. He must be able to mold the behavior of his men into singleness of purpose and effort, and this can be accomplished through experience and study of psychology

The inexperienced leader who seeks to know his men through study should study both psychology and the leadership experience of others. He thus acquires a store of techniques used successfully by others as well as an ability to understand the response elicited by their application. The ability he gains through study will not be comparable with that acquired through experience, but it constitutes the best available substitute. Study is the only practicable means that can be used to understand men during periods of rapid expansion of the army when time prohibits learning through experience. The most effective leaders combine command experience and continual study of related subjects.

Caution in Application

The application of psychology in leadership, must be tempered by an understanding of its capabilities and limitations. It is, therefore, desirable to consider the capabilities and limitations of psychology as an aid to leadership. They may be briefly listed as:

Capabilities.—A knowledge of psychology assists the leader to:

1. Anticipate possible behavior reaction from his men.
2. Influence his men to interpret a situation objectively.
3. Bring about a favorable adjustment of his men towards a situation.
4. Adjust the situation to benefit his men.
5. Better know himself and seek self-improvement.

Limitations.—The use of psychology in leadership is subject to the following limitations:

1. Psychology can only supplement command experience. Psychology is only an additional tool to be used in attaining leadership objectives. It should never be mistaken for an objective.
2. The conclusions of psychology are

limited. As a science, psychology has been in existence only a little over half a century. It has not yet explored the intricate human being to a point of being able to predict with certainty his behavior in all situations. Until further advances are made, leadership must remain an "art" of skillful application and knowledge gained mainly through experience.

3. Psychology establishes only general rules of behavior. These rules must be applied with sound judgment and consideration for actual circumstances.

4. A little knowledge can be dangerous. Men are not to be experimented with. Therefore, the leader must utilize only those psychological teachings that he understands thoroughly and knows have been proved to be sound.

5. Little research has been done in military psychology. Military psychology is a special application of general psychology. Not all of its teachings can be applied, nor should an attempt be made to do so. The military environment is vastly different from that tested by the general psychologist.

Behavior and Cause

All behavior is the result of some antecedent cause. Behavior does not just "happen." The behavior of an individual is not based on chance or arbitrary whim. It results always from some cause that can be discovered by analysis of the behavior situation. Every soldier believes he has good and sufficient reasons for what he does or fails to do, but often these causes are not known to his leaders. Modifying behavior, then, begins with examining the result to determine the cause for behavior.

There are two basic factors which cause behavior. These are the situation and the individual. Both are interrelated and affect each other. Thus, to modify behavior, it is necessary to alter either the individual, the situation, or both. The cause for any particular behavior can be

located through analysis of the situation, the individual, or both. This close relationship can be expressed by the formula:

Situation+Individual (Cause)=Behavior (Result).

Correcting the Cause

To modify behavior, correct the cause. After locating the cause of undesirable behavior, the leader must do something about it. The individual is not relieved of responsibility for improper behavior simply because he has good and sufficient reasons for it. Such behavior still must be corrected. Modification will be much more effective if the cause is corrected rather than merely placing the blame and relying on authority to correct the result. For example, military discipline is best accomplished when the technique of punishment is applied, not because a person is guilty (blame), but rather to correct (cause) his future behavior and to prevent similar behavior in others. Since the individual has ultimate control over his behavior, the leader will get best results by helping him to help himself. To do so, the leader must alter either the situation or the soldier.

Military leaders must often postpone seeking the cause. The cause approach to understanding is used consistently in respect to problems involving things such as motors or weapons. In the past, it has not been used enough in problems involving people. However, in human relationships (particularly among military personnel), emergency situations continually arise in which the result is momentarily more important than the cause. The leader must deal with these situations promptly and effectively. He must exercise his authority and secure a desired behavior result. Later, as time permits, the cause can be examined and corrective action taken to prevent recurrence. This process in no way vitiates the "cause—result" approach to correcting behavior but only alters the

sequence in which the behavior problem should be solved.

The Situation and Behavior

How the individual reacts in a particular situation depends not on the situation as it actually is but on how the individual perceives it to be. Many times, a change in behavior results by assisting the individual to see the situation in its true perspective. For example, the behavior of men will be greatly affected by the personal conduct of their leaders. If the leader indicates by word or deed that he considers a situation critical and likely to affect personal safety, it will be so interpreted by the individuals who observe him. Hence, it follows that the leader assists his men in properly interpreting a situation by setting an example for them.

The situation cannot always be modified. In military life, the leader and his men will frequently face military situations which do not permit extensive modification. The leader looks out for his men's welfare best by teaching them to interpret properly and overcome situations as they must be. In addition, the effective leader will do all within his authority to alleviate the hardships of war for his men. To this extent, he can, and does, alter the situation for his men.

The military leader must locate the cause for behavior. If a behavior problem affects many persons, leadership techniques probably will be most effective when aimed at correction of the situation. When the problem affects only a few persons, techniques definitely should be directed at the individual. If the problem arises without a change in the situation, the situation may still require more favorable interpretation by the men.

Common Behavior Situations

The following military situations commonly require assistance from the leader to assure proper individual adjustment.

1. Frequently encountered in the training period.

a. Loss of home and family relationships.

b. Regimentation.

c. Discipline.

d. Strenuous physical demands.

e. Lack of customary privacy.

f. Subjugation of personal interests and desires.

g. Malassignment.

h. Rivalry and competition.

i. Personal problems at home.

j. Lack of promotion.

2. Frequently encountered in overseas noncombat duties.

a. Uncertainty concerning the future.

b. Separation from familiar surroundings.

c. Isolation and continued monotony.

d. Long endured privations.

e. Unfavorable climate.

3. Frequently encountered in combat.

a. Fear resulting from danger.

b. Mental and physical fatigue.

c. Unlimited tour of duty in ground combat units.

d. Uncertainty regarding postwar plans.

e. Loss of unit identity in the replacement system.

f. Frequent loss of close friends.

Personality and Behavior

Personality is the second factor to be considered in the "cause—result" formula for behavior. Personality is a collective term used by the psychologist to describe the individual. Personality is not synonymous with mind but is inclusive of it. It is the sum total of a human being. It encompasses the intellectual, emotional, and physical structure. In brief, it is all a person has been, is, and all that he hopes to be.

Personality has its origin and development in heredity and environment. The extent to which each contributes to the

whole is of little consequence. It is sufficient to understand that environment means past experience. This past experience is the only modifiable part of the personality. Hence, modifying behavior by modifying the individual means altering the effect of past or present experiences which contribute to causing his present behavior.

Since personalities result from experience, no two personalities are identical, for no two personalities have identical past experiences. Hence, because a situation is interpreted in light of past experiences, behavior between individuals will vary widely. No two people act and think exactly alike. Each individual tends to react or respond to a situation according to how he personally "feels" towards the leader and "how" the leader chooses to direct his behavior.

Face-to-face leadership is necessary to cause desirable individual behavior. The wise and capable leader recognizes that individuals vary widely, and he selects techniques suitable to the individual personality in modifying behavior. This "personalized" application of leadership techniques is commonly referred to as face-to-face leadership. It requires respect for the dignity and individuality of each human being under the leader's command. It is the leadership required of the platoon leader who daily fortifies each individual under his command to meet his personal situations. To be effective, it requires a constant, honest, interest in the daily affairs of others and a willingness to set aside personal desires to help someone else.

Here are some scientific techniques commonly used in the army to assist individuals to adjust themselves to military situations. The use of all these serves to precondition the individual, thus avoiding undesirable behavior before it occurs.

1. Standardized and made available by the army.

a. Job selection.

- b. Classification of jobs and abilities.
- c. Personality measuring devices for use in assignment and reassignment.
- d. Assignment and reassignment.
- e. Career management programs leading to promotion.
- f. Constant development of individual clothing, equipment, and subsistence.
- g. USAFI and educational programs.
- h. Training, both physical and mental, to fortify the individual to overcome obstacles.

2. Commonly used by all leaders but not standardized.

- a. Counselling on personal problems.
- b. Disciplinary action.
- c. Group identification.
- d. Encouraging letter writing.
- e. Pass and leave programs for change, rest, and recreation.
- f. Provision of housing and recreation facilities.
- g. Red Cross and other agencies to assist in solving home problems.
- h. Provision of physical comforts and conveniences.
- i. Strengthening home ties and responsibilities.

Commanders of large units must also employ "personalized" leadership techniques. The nature of personality differences might imply that their understanding and application pertains only to small unit leaders who are in intimate daily contact with all men of their commands. It is equally essential for the general to understand intimately the personalities of his staff and immediate subordinates. Some will require a tight supervisory rein. Others will require urging. Some can be trusted with independent missions. Others require detailed and precise orders. Each is a separate personality, and it is too much to expect they will act and think exactly alike because of similar training. All information received from them will require interpretation according to the personality of the sender. No situation

will be as good, or as bad, as information from them indicates. Their plans, orders, and actions will all reflect the individuality of their personalities. Thus, division and higher unit commanders need to know and apply "face-to-face" leadership. Any person with whom the leader has personal relations will be affected by the personality of the leader. Remember, it is not enough just to obtain results. The results must be obtained in a way that enhances the confidence, respect, and loyal cooperation of all those with whom the leader has intimate, daily, human relations.

Altering Personality

Certain personality characteristics are more susceptible to alteration than others. When seeking to elicit desirable behavior by adjusting the individual personality to cope with a situation, it is important to know what characteristics can be altered. Only those characteristics acquired through experience are alterable. Those that originated in heredity are beyond possibility. Thus, a commander cannot make a bandsman simply by transferring a man to the band if he has no musical talent. Conversely, he can expect best results when he assigns men to jobs suitable to their learning capacity. The following general rules govern when seeking to cause desirable behavior by modifying personality.

Acquired characteristics such as habits, attitudes, feelings, skills, interests, and preferences are easiest for leaders to alter. Characteristics such as temperament and emotional instability are difficult to modify. Inherited characteristics such as intelligence, aptitudes, or talents usually cannot be modified.

In those cases where certain unalterable characteristics were not sufficiently endowed by nature to cope with a situation, the individual must be reassigned to duties within his capabilities. To this extent, adjustments to meet the situation must be made.

The Leader's Personality

The leader must develop a predominant personality. So far in the behavior equation, no consideration has been given to the leader. The leader is also a personality and his leadership can be no more effective than the development of his attributes and his experience permits. Face-to-face leadership quickly resolves itself into a meeting of two personalities, the leader and the led. All things being equal, the stronger personality will predominate. Hence, the leader must develop a personality adequate to cope with all types of behavior situations arising in his command. His personality must be expanded to deal with a far greater range of behavior problems than he would normally experience as a follower. He must be able to dominate group personalities which are far more complex than individuals. If he chooses leadership techniques beyond his capacity, or which are not particularly suited to his own personality, he will be accused of insincerity and his efforts will be futile. Hence, the leader must constantly practice self-analysis and seek to develop characteristics to improve his personality. Thus, he broadens the number and scope of leadership techniques which he can employ effectively.

Many attempts have been made to characterize the desirable military leader by listing personality attributes. These attempts have, in general, resulted in failure because of a lack of consistent interpretation of these traits. It is easy to find instances of great leaders who lacked certain of these qualities to a marked degree. No great leader possessed them all to the nth degree. The list of traits believed in by any one leader, and how he defines and evaluates them, are of little consequence. The important thing is that he strive constantly to apply them to modify the behavior of others. The following is a list of the most commonly accepted desirable military personality traits:

Knowledge
Judgment
Courage
Integrity
Dependability
Tact

Endurance
Initiative
Bearing
Justice
Enthusiasm
Unselfishness

A harmonious combination of attributes is essential. Only the more easily identifiable attributes are listed above. Others valued highly are combinations, variations, and contradictions of those listed. The important thing is to acquire a harmonious combination of powers in which one or more traits may often predominate, but none must be in opposition. To improve his personality, the leader should select one of the above attributes and consciously apply it daily as he understands it. After considerable practice, concentrate on the selection and application of another. Thus, leadership capacity will become a harmonious combination of characteristics apparent in all the leader says or does.

Group Behavior

While it is true that the leader must constantly employ a face-to-face understanding of human behavior, necessity dictates that he focus major attention on the direction and influencing of military units. This is particularly applicable to large force commanders who do not have the advantage of intimate daily contact with all individuals in their commands. All leaders must realize their major efforts belong to the unit they command. Large forces are not commanded as individuals, but as groups, or military units. It is essential, then, to acquire an understanding of group behavior and how it can best be modified to assist the leader in attaining his mission.

It has already been established that individuals vary widely in their behavior as a result of experience. However, it is paradoxical that there are remarkable similarities in behavior for the same reason. All people seem to possess the same abilities

and traits, but to varying degrees. Most of this similarity is due to the society in which people live. In a democratic society, all are exposed to the same religious, scholastic, governmental and other environmental influences which, in turn, tend to create similar beliefs, attitudes, and habits.

Further, when people are united in group effort, the behavior of each individual in the group serves to cause a like response in others. This chain reaction serves to minimize the effect of individual differences and mold individual behavior into the pattern of the group.

Eventually, the group becomes united and acquires an identifiable, predictable, behavior personality. The leader can develop this group personality above and beyond the sum total of the personalities of the individuals in it. Once established, this group personality will tend to persist, even though most of the individuals in the group change.

Leading the Group

The group personality challenges each member to conform and contribute in co-operative effort. Hence, the force of the group personality may cause undesirable as well as desirable behavior. The individual integrated into a unit noted for its poor disciplinary record will often be unruly, even though such behavior is not in harmony with his individual personality. Thus, the development of *esprit de corps* is one of the most effective means of modifying the behavior of the group as well as the individuals in it. The greater the unit *esprit*, the greater will be individual efforts to be found worthy.

All military training is aimed at the development of group behavior. When individual personalities react properly to one another in training, coordinated effort must develop. The effect of differences in personalities is minimized, and similar contributive behavior will result from all

members of the group. Repetition of this process molds individual personalities into a behavior pattern. Thus, the importance of training men as a team. Training that produces behavior patterns creates discipline, for it causes individuals to react cooperatively from force of habit. Further, correct training preserves individual initiative during cooperation so that, in the absence of orders, the individual will respond intelligently to what those orders would have been. Military training, then, seeks to establish unit behavior patterns by directing individual effort to the singleness of purpose of the unit, but without destruction of individual initiative.

Given training and *esprit* in a unit, the individual soldier takes great pride in his unit. He willingly subjugates his personal desires to unite in cooperative effort. This is the positive and most effective form of discipline—self discipline. To safeguard the unit personality, rules, regulations, and behavior codes must be established. Nonconformists must be promptly and judiciously punished. If this precaution is not taken, their behavior quickly produces a chain reaction in others, thus destroying unity. This is a negative or protective form of discipline.

The group has keener insight or perception. By pooling personality traits, the unit will quickly analyze a situation and the leader. The leader who is decisive, knows his job, and goes about it efficiently, receives favorable reaction from all members of the group. One who is bluffing or is not equal to coping with the situation is soon found out. Such leaders must rely solely on authority. This will produce, at best, a mediocre performance.

Destructive Elements

Surprise, boredom, and failure are causes of undesirable group behavior. Surprise is an enemy of group unity because perception is faster than adaptability. The effect is confusion, a sense of helplessness,

and loss of confidence in the unit and its leader.

Boredom dulls the keenness of a unit's spirit. Enforced inactivity causes thoughts to turn inward to personal difficulties. Situations are magnified out of proportion. Dissatisfaction and dissension result.

Failure or mediocre performance damage the *esprit* of a unit. When a unit fails, it not only doubts its own capabilities but loses confidence in its leaders. Since the extent of failure is measured in consequences, failure in training is not judged by the men as seriously as failure in combat. However, because what is accomplished in training will produce similar performance in battle, both are equally damaging to a unit. Thus, the leader who understands his men employs his command strictly in accordance with its capabilities. He husband's their capabilities and avoids dissipating their effectiveness in inconsequential actions or tasks. He asks nothing of them that is not necessary to accomplish his mission. Meanwhile, he strives continuously to enhance the capabilities of his command.

Attitudes

Attitudes are beliefs or opinions that have some measure of permanency. They are important to the leader because they indicate behavior predispositions within military units. The skillful leader will recognize these behavior predispositions and select techniques to modify them or to modify adroitly the situation to meet them. The assembling and tabulation of data on attitudes are highly skilled procedures that must be done scientifically if results are to have accuracy. This service is provided by the Department of the Army. Regulations prohibit unit com-

manders from conducting like surveys without special permission.

In the accompanying charts are some attitudes of groups of American soldiers which can be used to select more effective leadership techniques by proper interpretation.

Summary

By definition, leadership is the art of "influencing and directing people." Psychologically speaking, it is the art of "modifying behavior along a desired line of action." "Influencing people" accomplishes the desired behavior modification without conscious knowledge by the command. "Direction" accomplishes this same purpose, but with full realization by the command. Both methods are effective and must be employed. Choosing and applying the most effective method requires a knowledge of the behavior to be elicited in response.

All behavior has a cause. Most effective modification is accomplished when leadership techniques are beamed at the cause. The cause may be located in one or both of two factors, the situation or the personality.

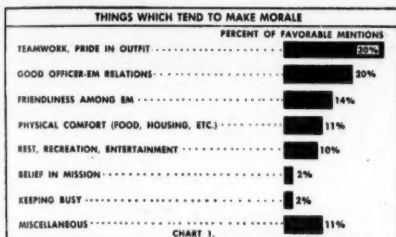
The military leader will be most effective in modifying behavior when he follows these steps:

Determine the situation in recognition of possible favorable or unfavorable behavior from the individual or the unit.

Assure that the situation is interpreted by each individual objectively as it affects the unit and the mission.

Cause a favorable adjustment of the unit towards the situation.

Adjust the situation (to the extent of his means) in consonance with the personality of the unit.



The commander of a newly activated division desires to establish good morale throughout the division quickly. What predispositions do the men possess which will assist the commander in the selection of the proper techniques? They are given in Chart 1. If no extenuating circumstances exist within the division to cause a deviation from the norm, the commander can expect results corresponding to the predispositions in the chart.

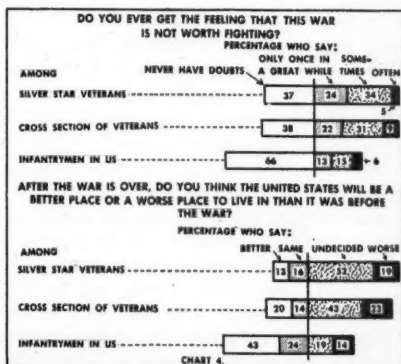
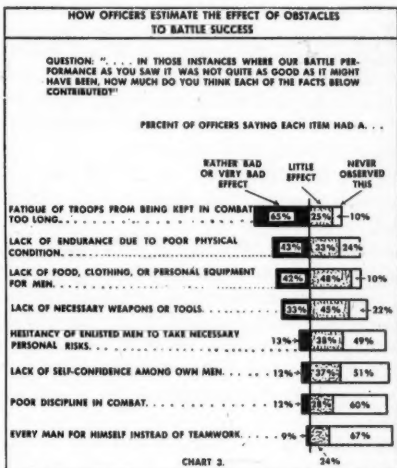
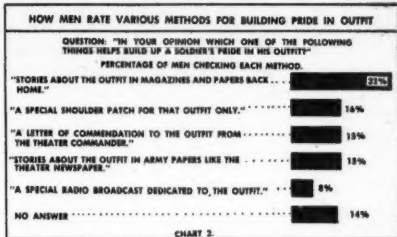
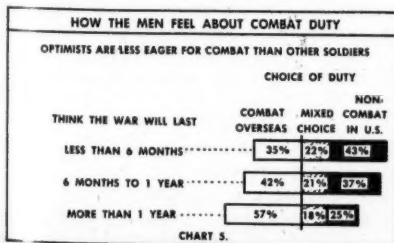
Granting that teamwork and pride in outfit should receive the greatest emphasis in developing morale in the division, how can the division commander best promote pride in outfit? The answer is given in Chart 2.

What obstacles should officers of the division be especially prepared to overcome in combat and how serious are those obstacles? It is obvious, by examining Chart 3, that officers must be trained to be especially concerned for the care and welfare of the men under their command. Again, techniques should be developed and practiced to eliminate all of the conditions analyzed in Chart 3, but with emphasis on the first four obstacles.

Suppose that a division has been ordered overseas and the commander desires to apply leadership techniques to prepare his men for the combat zone. Do the men feel strongly for our cause? Considering the percentage figures in Chart 4, some attention is required to orient men in training concerning our cause.

Should the men be encouraged to believe they will be overseas for an extended period? The answer may be found by studying Chart 5. Obviously, those men who believe the war will last in excess of one year are more reconciled to overseas duty.

Properly conducted surveys will reveal predispositions or attitudes, useful to the commander. By proper interpretation, some indication is gained as to the relative effectiveness of various desirable leadership techniques. Deviations between resultant behavior and predispositions are most likely due to some problem peculiar to a particular group or unit. Analysis should then be made for specific cause.



The Regulating Station in World War II

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DURING the course of World War I, three American Regulating Stations were established in France, patterned after the French Army Regulating Stations that had been in operation since 1914.

Military operations had early demonstrated that wartime transportation in an active theater could not be operated on the same principles as peacetime transportation. It was soon found that varying troop strengths reported from the various railheads made prompt diversions from established routines essential. Successful operation dictated that supplies for troops in the field be regulated by a central agency which alone followed the routing of supplies from one point to another. It was further realized that this agency, the Regulating Station, should exercise full control over shipments to include time and method of movement, when necessary, as well as priorities. Flexibility was maintained by shipments of balanced stocks of rations, frozen meat, forage and fuel, and only one day's supply was held on hand at the Regulating Station, at least in theory.

The theory, as developed, was that the Regulating Station should act as an intermediary between the supply bases in the rear and the organization being supplied, and would know both the requirements and the stocks available. Army requisitions were received and forwarded to supply bases in the rear. Supply bases furnished advance notice of shipments, and for-

warded a daily train to the Regulating Station. Upon arrival, supplies were broken down, and unit trains, or sections thereof, were made up and forwarded daily to the numerous army railheads.

Direct command of the Regulating Stations was vested in GHQ itself, as it was felt that there were too many factors involved to permit command of the station by the Army being supported or by the Communications Zone.

Physically, the Regulating Station was a very large, immobile installation. It contained large marshalling yards, numerous warehouses, freight sheds, a network of roadways, and even hospitals and rest areas for combat troops. To draw a parallel with World War II, it might be said that the Regulating Station constituted a small, centralized, and self-contained Advance Section, charged with the supply of the Army it served as well as serving as an evacuation, hospitalization, and rest center. At the close of World War I, First Army had a strength of 250,000 troops while its supporting Regulating Station was manned by 1,500 personnel.

In contrast to the mobility of World War II, World War I was characterized by stabilized trench warfare. Transportation was slow, shorter distances were involved, frontages were much smaller, and troops occupied relatively stable positions. No system of base, intermediate, and advance

depots was used to insure adequate supply of wide frontages and protection of supplies by echelonment in depth. The Regulating Station of World War I—immobile and concentrated in small areas vulnerable to swift air or ground attack—was not suitable for furnishing the entire logistical support and control of movement for a field army in World War II. Yet it was this organization which furnished the pattern for the Regulating Station described in Field Manual 100-10, 15 Nov 1943, and the basis for organization of these units in World War II in the European Theater.

Early in the planning stages for Operation *Overlord*, the necessity for regulating the movement of supplies and troops to and from the combat zone was recognized. The Regulating Station was selected as the agency to perform these functions. The

Section, Communications Zone. Advance Section, in turn, made the Section Transportation Officer responsible for establishment of the installation.

European Theater of Operations SOP No. 33 (Revised), June 1944, established the organization and functions of Regulating Stations. This SOP made two contradictory statements, however, in providing that "the functions of the Regulating Station will be limited to those of a traffic control agency" and "the Regulating Officer receives and processes, in accordance with SOP 7, all requests and requisitions submitted by the forces in the Combat Zone." Shortly after the activation of Twelfth Army Group, Regulating Stations were established by Advance Section, Communications Zone, to support each field army. Advance Section regulations specified that the Regulating Officer's duties

The Regulating Station performed important services in two World Wars, but its functions in the future can be taken over logically by G-4, transportation, or technical supply officers of Advance Section or Army

various headquarters and staff sections represented on the planning staff could not agree, however, on the necessity for these installations, or on the responsibility for their command. First Army Group felt that Regulating Stations would be necessary; the Transportation Corps did not. Some planners felt that these agencies should be commanded by the Commanding Generals of the Army Groups, but First Army Group and Headquarters SOS felt that the Commanding General, Communications Zone, should exercise this responsibility. These concepts were both distinct departures from the provisions of Field Manual 100-10, which made the stations an agency of the theater commander. It was finally agreed, however, that Regulating Stations would be organized and function as outlined in Field Manual 100-10, but would be assigned to Advance

were expanded to include coordination of construction of facilities, such as pipe lines, railroads, and highways.

The Regulating Stations employed in the ETO were all organized under T/O&E 29-22, which provides for personnel in sections shown in the strengths indicated below:

Administration—Col, Lt Col, 6 EM.

Control—Lt Col, Maj, Lt, 11 EM.

Transportation—4 Maj, 4 Capt, 3 Lt, 29 EM.

Quartermaster—Capt, 3 Lt, 10 EM.

Ordnance—Capt, 2 Lt, 7 EM.

Engineer—Capt, Lt, 5 EM.

Medical Supply and Evacuation—2 Capt, 3 Lt, 11 EM.

Signal Supply—Capt, Lt, 4 EM.

Chemical Corps—Capt, Lt, 5 EM.

Air Corps Supply—Capt, Lt, 5 EM.

AG Casual—Capt, 2 Lt, 9 EM.

Hq Company—Capt, Lt, 39 EM.

Signal Communications — (Including message center, messengers, switchboard, teletype) 5 Lt, 61 EM.

TOTAL—46 Officers, 202 Enlisted Men.

It is doubtful if any of the stations ever operated with exactly these sections in these strengths. In most stations, the Air Corps Supply and AG Casual Sections were never operational. The additional duties of operation of railheads, airheads, and convoy regulating posts necessitated a considerable enlargement of the transportation section. Additional requirements for vehicle drivers caused augmentation of the headquarters company. Varying factors from time to time caused readjustments of the strengths of the sections and of the stations as a whole.

The Regulating Station was organized as a completely self-sufficient activity and operated its own mess, motor pool, communications, and security guard, and performed general administration and housekeeping for its headquarters. It was usual practice to employ civilians as interpreters and to augment mess and housekeeping details. Outlying detachments either messed with nearby units or drew rations and operated small messes of their own, if numbers warranted.

Although each one of these Regulating Stations developed its own detailed methods of operation, and the conditions in different Armies necessitated variations in the functions performed, the following were the essential functions generally performed:

1. *Highway.* As the First and Third Armies advanced after the St. Lô breakthrough and lines of communication from the beaches became longer, the Regulating Stations moved forward and established headquarters in close proximity to the headquarters of the Army being supported. They promptly set up movement-control and information points at major highway diversion points near the army rear

boundaries to furnish diversion orders and proper army dump and depot destinations to truck convoys hauling supplies from Communications Zone installations. Courier, wire and radio, and later teletype links with Army and Advance Section were also installed.

2. *Rail.* As the rail lines were rehabilitated and pushed forward, each Regulating Station established and manned a rail reconsignment point. Supply depots in advance and base sections consigned all supplies for a given army to the Regulating Station supporting that army, and the Military Railway Service delivered the cars to the rail reconsignment point. At this installation, Regulating Station personnel checked contents of cars and reconsigned them to the army supply railhead in use at that time for that class of supply. This procedure was due in part to the time-lag between requisitioning and actual receipt of shipment—averaging about 7 days—and the possibility of army desiring supplies laid down at a location other than that shown at the time of requisition. Due to the lack of a complete transportation service in the armies being served, some army railheads were actually manned by Regulating Station personnel who assumed the duties performed by Rail Transportation Officers (RTO's) at railheads and depots in the Communications Zone. Third Army soon developed a movement-control (RTO) organization and operated its own railheads; those of First Army were operated by either Army or Regulating Station personnel as available; those of Ninth Army were all operated by Regulating Station personnel throughout the campaign.

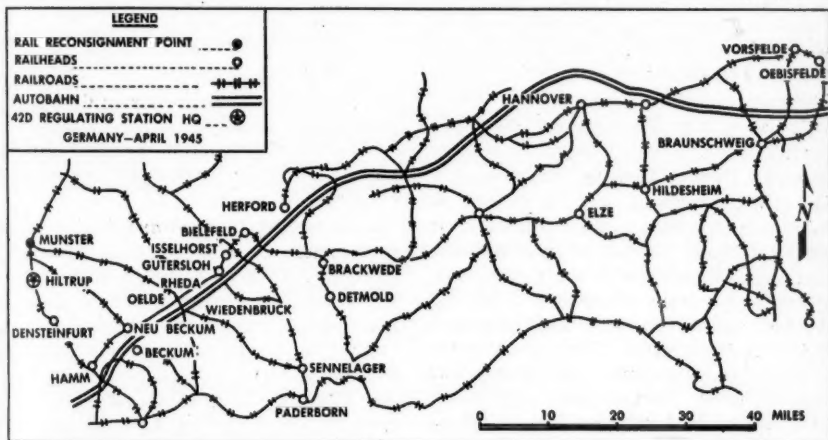
Due to limitations on both highway and rail transportation, Twelfth Army Group established tonnage allocations for each Army, and it became a primary concern of both Advance Section and Armies that each Army actually received its allocated tonnage daily. Regulating Station personnel, in conjunction with Army personnel,

checked the tonnages delivered to the Army and reported the figures by service and class to Advance Section daily. A car situation report was also instituted and submitted daily to Army and ADSEC which reflected the operations at each railhead—cars on hand, received, unloaded, loaded out, forwarded empty, and on hand at end of period. Information was also forwarded on this report reflecting any unusual situations or problems requiring attention.

As the Armies moved, the Regulating Stations moved with them, displacing the

3. *Air.* When airheads were used for the receipt of supplies, the Regulating Stations acted as liaison between Army and Advance Section and handled the reporting and expediting of supplies from airhead to army supply installations. Usually, personnel were stationed at the air strip to facilitate handling.

4. *Supply.* ETO SOP No. 7, 19 March 1945, delineated the responsibilities of the Regulating Station and other organizations relative to supply of the Armies. These designated responsibilities were principally



rail reconsignment point forward as they moved. As an example, the 42d Regulating Station, supporting Ninth Army, moved its rail reconsignment point forward seven times in the 7 months from September 1944 to April 1945 and operated a total of 68 different railheads during that period.

As the campaign progressed, the evacuation of wounded and the handling of prisoners of war, recovered allied military personnel, displaced persons, captured and excess matériel, and redeployed troops assumed major importance. The Regulating Stations arranged these movements to the rear the same as they had in the forward movement.

supply liaison between Army and Advance Section, receipt and forwarding to designated depots of all requisitions and requests of the Army, providing current and accurate information to Army on status of requisitions, and controlling the movement of personnel and supplies to and from the combat zone. Technical service officers of the Regulating Station maintained the necessary records to accomplish the above missions and maintained constant close supply liaison between technical service officers of Army and Advance Section. It was a frequent and most important duty to physically run down and follow-up requisitions at Advance Section issue depots, and

at intermediate and base section issue, key, or filler depots.

5. *Liaison.* Regulating Station personnel furnished an intermediate link, which was invaluable for liaison, between Advance Section and Army. The various sections were in daily intimate contact with the corresponding sections of the Army headquarters and were able to secure both current and planning information to pass to the rear. They were also able to keep Army staff sections informed as to Communications Zone plans and policies, and to furnish assistance in selection of railheads, supply dumps, and other installations to tie in with the construction of rail, highway, and pipe-line facilities from the rear.

6. *Expediting.* Regulating Stations expedited supply to the Armies in three ways. First, by tracing, locating, and arranging for prompt handling and forwarding of shipments that were actually enroute from supply sources. Second, by personal contact and follow-through on requisitions; by locating sources of supply and arranging for prompt turnover to Transportation Corps for forwarding. Third, by enforcing priorities in forwarding supplies from rail reconsignment point to Army railheads. This last method requires some explanation. When cars arrived at a rail reconsignment point in numbers beyond immediate forwarding capacity, Army G-4 usually established priorities. These priorities would indicate the service, class, and quantity of supplies most urgently needed, and the Regulating Station would be governed accordingly in selecting the cars to be forwarded on the first and succeeding trains.

7. *Summary of Operations.* To summarize, it might be said that the operations of Regulating Stations comprised the following activities:

a. Transportation.

- (1) Movement control.
- (2) Railhead operation.

(3) Reports and records.

b. Supply.

- (1) Receipt and forwarding of requisitions.

(2) Reports and records.

c. Liaison.

- (1) Present requirements.

- (2) Future planning.

d. Expediting.

- (1) Transportation.

- (2) Supplies.

- (3) Information.

e. Unit Administration.

- (1) Communications.

- (2) Personnel.

- (3) Housekeeping.

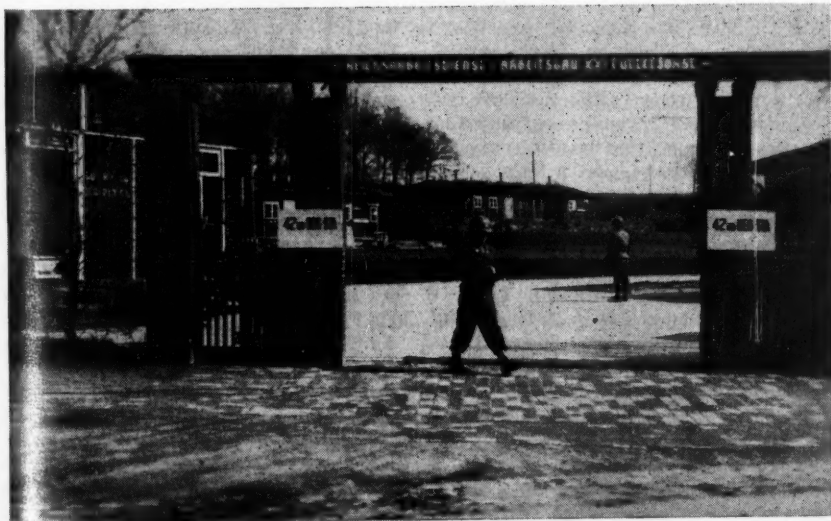
- (4) Other.

A number of problems arose during the course of the campaign which were never completely solved and they most seriously affected the efficiency of operations. Among them may be mentioned the following:

1. *Command Channels and Authority.* It was common knowledge at higher levels of Army and Advance Section that the Regulating Stations were assigned to ADSEC and were supporting the Army. However, lower echelons of both organizations, as well as numerous installations, individuals, and staffs of intermediate and base sections and Communications Zone were vague in their understanding of the authority and functions of these agencies. In emergencies, when authority should be definitely placed and understood, confusion existed. During the period of congested rail conditions in the Liege area in the autumn of 1944, and west of the Rhine bridges in the spring of 1945, Armies, Advance Section, Communications Zone, and Army Group, all attempted, generally through their G-4 staff sections, to issue instructions and control movements. Frequently, instructions from Regulating Stations were questioned by the Military Railway Service and valuable time was lost in securing confirmation from higher authority. If all had understood that the Regulating Station



The railroad yards at Lunéville, France (above), are typical of many railheads operated by Regulating Stations for troop and supply movements in World War II.—US Army photo. Below, the 42d Regulating Station at Lutelfonst, Germany, in April, 1945; the photo is from the files of the author.



spoke with the authority of the Advance Section commander, the situation would have been much improved. However, there are many who believe that the Regulating Station should have been an agency of Theater Headquarters, or at least of Headquarters, Communications Zone, to permit prompt solution of problems requiring a high-level decision.

2. *Delineation of Responsibilities.* A detailed SOP should have been issued specifying the exact extent of the responsibilities of the Regulating Station in carrying out its many functions. There was a distinct tendency on the part of both Advance Section and Army to "delegate" duties to Regulating Station personnel which were actually functions of the staff sections concerned and could hardly be accomplished by the Regulating Station. Despite this, Regulating Station instructions were sometimes changed through other channels by the very staff sections that had made the original "delegation" of functions. The "passed buck" was one of the great difficulties encountered in serving as a connecting link between Advance Section and Army.

3. *Supplying Two or More Armies.* Where two or more Armies were supplied over a single transportation network, conflicts developed. The problem of diverting supplies from one Army to meet emergency needs of another was never fully solved, nor was that of movement priorities between two or more Armies. Better liaison, including a direct communication link with G-4 Army Group, would undoubtedly have solved these problems. When the capacity of a common line of communication is insufficient, a controlling agency superior to the Regulating Stations involved is essential to establish priorities.

4. *Lack of Information.* Generally speaking, information from supply sources and Advance Section Transportation Section was difficult to secure, inaccurate, and late in arriving. Under these conditions, it was

impossible to give Army accurate information on the progress of filling requisitions, or any accurate forecast on the arrival of shipments prior to actual arrival at the rail reconsignment point. More thorough enforcement of existing directives, together with better communications, would have eliminated this problem.

5. *Communications.* In general, radio, teletype, and wire communications were excellent. Courier service was not so satisfactory, and special runs were frequently required. The greatest communications difficulties were with supply installations in the rear, rather than with the headquarters involved. Late in the campaign, liaison-type aircraft were furnished and were a most valuable addition. With the geographic dispersion of headquarters and installations, and the large amount of personal contact required, there was a need for more planes than were furnished.

Interesting comments were made in after-action reports and other documents by the commanding officers of the Regulating Stations; Continental Advance Section; Advance Section; G-4, Twelfth Army Group; Chief of Staff, Communications Zone; and the European Theater General Board. They may be summarized as follows:

a. There was little agreement on the necessity for, method of operation, or command authority of, Regulating Stations.

b. The Advance Sections themselves were actually a form of Regulating Station.

c. An over-all agency is needed to regulate flow between Armies and divert from one to another when necessary.

d. Movement control between Advance Section and Armies is necessary.

e. A theater agency is needed in forward areas to supervise movements into and out of Army areas.

f. Regulating Stations were actually involved more with expediting than with regulating.

World War II disclosed that these agencies (as visualized in Field Manual 100-10, 15 November 1943, and T/O&E 29-22) were not suitably organized for their revised duties in the field, nor were their duties sufficiently outlined. Many revisions of policies and ideas were required, temporary expedients were employed, and the organization of these units considerably modified. Misunderstanding existed as to the command authority, status, and duties of these stations; and there was considerable overlapping of functions from time to time. The operation of the Regulating Stations was not entirely successful for these reasons, but it is generally felt that they contributed materially to the speedy and uninterrupted flow of supplies to the combat troops, and to the prompt evacuation of wounded, excess supplies, troops, enemy prisoners, and equipment and resources to the Communications Zone. Perhaps their most important contribution was in furnishing personal contact between the large headquarters and depots and the many services charged with carrying out these functions.

Today, with the advent of a well-trained and organized Transportation Service in each field army, and with the experience gained by supply and technical services in World War II, the operating duties performed by the Regulating Stations can and should be reassigned. There will, however, remain a definite need for better logistical liaison between the field forces being supported and the complex supply organization furnishing that support. This continuing requirement for logistical liaison is principally caused by the following factors:

1. Limited supplies, coupled with multiple demands.
2. Limited transportation facilities.
3. Lack of flexibility in routine supply procedures.

4. Emergencies that demand immediate action.

5. Size of headquarters and installations involved.

6. Geographic dispersion of headquarters and installations.

While the Regulating Station performed very necessary and important functions in World War II, it is probable that it will not be necessary in any future conflict. All of its operating, liaison, and expediting functions are essential, but should now logically be assumed by either the G-4, transportation, or technical service supply officers of Advance Section and/or army. To insure smooth functioning, however, appropriate procedures should be developed and published during peacetime. A more complete understanding of the techniques and problems of storage, distribution, and transportation on the part of future staff officers is essential. The ability to meet the unexpected must be stressed in training.

There is a major requirement which must be met if we are not to use the Regulating Station again. It is absolutely essential that intelligent, well-trained, efficient, and enthusiastic personnel are available in sufficient numbers on the technical service staffs of the Armies and Advance Section to continually carry out liaison and expediting functions in the field. Personnel selected for these assignments must be given no other routine office duties; they must be the always-available trouble-shooters who can get action when the normal system breaks down.

The answer to the elimination of the Regulating Station in a combat theater is twofold—better logistical education of staff officers in peacetime, and augmentation of technical service staff sections at Army and particularly Advance Section levels in time of war.

Command Post Exercises

Lieutenant Colonel Howard P. Persons, Jr., *Coast Artillery Corps*
Former Instructor, Command and General Staff College

NO MATTER how efficiently the individual staff officers of a unit perform their respective jobs, a staff is untrained until its individual members learn to work as a team. To weld each staff into an effective team, to develop coordination between the several staffs, and to train all staffs to function smoothly is the primary purpose of the command post exercise.

Command post exercises permit unit commanders and staffs to apply their theoretical knowledge of correct command and staff procedures to a wide variety of assumed tactical situations. They provide the commander with opportunity to correct faulty staff procedures, to break down staff compartmentation, and to evolve standing operating procedures which best suit the functioning of his own and subordinate headquarters. In addition, after the staffs are trained as teams, command post exercises are invaluable to the commander as a testing medium for field maneuvers or field exercises in which all troops will participate. By playing each of these maneuvers first as a command post exercise, the commander can correct deficiencies revealed by the play and thus insure that the maneuver will not fail or drag because of faulty staff work.

To obtain full value from a command post exercise, commanders and staff officers must have an understanding of exactly what such an exercise involves. The purpose of this article is to provide this under-

standing by means of a brief discussion of the command post exercise with emphasis on its preparation and conduct.

Definition and Types

Command post exercises are field exercises in which participation is limited to command, staff, headquarters, and communication personnel. All other troops, including the enemy, are represented by umpires. These exercises vary widely in type. At one extreme is the type which resembles the map maneuver. In this type, only officers participate; few, if any, communications facilities are provided, and command posts are grouped in one location. At the other extreme is the type which closely simulates combat conditions. Command posts are separated by normal distances and sufficient headquarters and communications troops are provided to locate, install, and move the command posts just as would be done in a similar situation in combat.

Length

A command post exercise may last for several hours or for several days. The length of any particular exercise will depend primarily upon the purpose of the exercise. For example, if the command post exercise is to test a specific maneuver, both should last the same length of time. In general, a command post exercise should last long enough to permit illustration of the desired principles but not so long that

action drags and the participants lose interest. Whether or not the play of the exercise is continuous depends again on the purpose of the exercise. If the exercise is to test the feasibility of a particular operations plan, regular training or office hours may be observed. However, if the purpose of the exercise is to provide field training in command and staff procedures, then the play should be continuous. Otherwise, a faulty picture of staff operations is presented. The staffs concerned will fail to realize the complications which arise from the necessity for organizing for uninterrupted operations as well as for adequate rest and sleep.

The duration of a command post exercise may often be reduced by using a time ratio of 1 to 2 or more, i.e., by allowing 1 hour of actual time to represent 2 or more hours of problem time. However, in the

be executing the plans if they were physically taking part in the exercise.

Location of Command Posts

Various schemes have been used in locating command posts. In some exercises, it has been necessary to have all command posts situated in the same general locality in the field. The assembly of several command posts in one small area has the disadvantage of creating an artificial situation and producing a lack of realism, particularly with respect to signal communications. Experience has shown that locations and movements of command posts seldom can be exactly as in combat. However, it is desirable that the command posts be situated in realistic locations suitable for the principal play of the problem, even if the command posts must remain in the same locations throughout the exercise.

Command post exercises permit unit commanders and staffs to apply their theories of command and staff procedures to various tactical situations. Here is how such exercises may be prepared and conducted

interest of realism, a time ratio of 1 to 1 is desirable. Whenever possible, the time ratio which will achieve the greatest realism and still permit development of the problem sufficiently to illustrate the desired principles should be used. Instead of using an increased time ratio, it may be feasible in some exercises to use a time ratio of 1 to 1 during most of the exercise by allowing 1 hour, at a critical time, to represent the passing of 1 or more days. Obviously, if this system is adopted, great care must be used during the preparation of the problem to determine just when this time lapse should occur in order to be effective and yet not confuse the play. Another solution is to use a 1 to 1 ratio during the planning phase and then change to a 1 to 2 ratio during the operational phase, which is the period during which the troops would

Distances separating command posts should, when conditions permit, be approximately as they would if the situation were real. This is particularly true when normal strength signal communication units are participating. Otherwise, the players overlook or discount difficulties of communication that occur in actual operations. Except as a last resort, it is unwise to hold a command post exercise with the headquarters in their permanent locations. Not only is this practice unrealistic, but participants will have difficulty in divorcing themselves from day-to-day business and in concentrating on the play of the exercise.

Control

Command post exercises are controlled and regulated by two groups: the directors and the umpires.

Directors—The directors are charged with the over-all responsibility for preparing, directing, controlling, and supervising the exercise. In some respects, this group might be compared to instructors, since they furnish advice and guidance to the umpires and the players but do not usually participate directly in the play of the exercise. The directors are the persons most familiar with the exercise; they are interested in seeing that the desired principles are correctly illustrated by the play of the exercise and that all participants follow accepted command and staff procedures.

The director group usually consists of an Exercise Headquarters—which directs and supervises the exercise as a whole—and a number of unit directors. One unit director is present with and supervises each of the participating headquarters. The Exercise Headquarters is usually staffed by officers who were responsible for the preparation of the exercise. In some cases, the Exercise Headquarters also represents higher headquarters. The unit directors are selected either from among the senior officers of the participating units or from some other unit or units. Unit directors always receive the same orientation as the umpires. In some exercises, the unit directors are actually called umpires.

Umpires—The umpires, under a chief umpire, are responsible to the exercise director for the detailed control and coordination of the play of the exercise. They represent all headquarters and units, including the enemy, that are not represented by the players or the director group. Umpires exert the greatest influence upon the success or failure of the play of the command post exercise. An adequate number of qualified officers must be assigned as umpires.

The principal duty of the umpires is to evaluate the orders and decisions of the players. This evaluation is not delivered

as such to the players, but is reflected in the orders, messages, and information which the umpires (in their capacity as higher, subordinate, and adjacent units) furnish the players. In all types of command post exercises, the action of the umpires must be closely coordinated in order to prevent inconsistencies in reporting information of enemy action. Umpires representing opposing forces work closely together to insure that the situation of these forces will be coordinated at all times.

The umpires should be assembled sufficiently in advance of the play to become thoroughly familiar with their duties and with the problem. During the preliminary orientation for the umpires, their duties and the general nature of the problem are carefully explained by the principal author of the exercise (usually the G-3 of the major participating unit). At this orientation, the author of the exercise should give a clear and concise explanation of the exercise, visualizing how the director would like to see the problem develop, and pointing out any significant items or developments to be carefully checked. These instructions may consist of a brief of the exercise, a summary of the tasks to be accomplished, a concept of the play, and suggestions to the several umpire sections on methods of developing the exercise.

After this orientation, the umpires, under the direction of the chief umpire, study the problem and the scenario, complete their organization, devise necessary control measures to develop the play along the indicated lines, test the exercise by means of a war-game, and submit recommendations for changes to the director. Before the exercise begins, the chief umpire satisfies himself that each umpire knows the particular duty he is to perform and that the separate signal communication system established for the umpires is adequate and functions properly. If possible, he should make certain that the band of radio frequencies set aside for his use

is not within the receiving capabilities of the players.

Preparation

No rules can be laid down for the sequence to be used in drawing up a command post exercise, since much of the preparation must be done concurrently. In general, however, these steps should be followed in the preparation of division, or higher echelon, exercises:

Issuance of the directive—The division commander issues either a verbal or written directive through the chief of staff to the G-3, setting forth the purpose and scope of the exercise. If necessary to guide the preparation of the exercise, this directive also indicates the terrain available, the participants, the date and duration, and the funds available. G-3 receives the directive because he is primarily responsible for the preparation of the exercise, although all members of the general and special staff will contribute.

Organization of the division staff—As soon as the directive for the exercise has been issued, the division staff is organized into a planning group (sometimes called the exercise committee), a director group, and a player group. The planning group, which will be charged with preparation of the tactical and administrative features of the exercise (including the problem and the scenario), consists of the G-3 and such other general and special staff officers as may be required to assist in the preparation of the particular exercise. The purpose and scope of the exercise will determine the size and composition of the planning group. The director group, which will exercise over-all supervision over the play of the exercise, usually consists of the division commander and selected members of the planning group. In nearly all cases, the G-3 will be a member of the director group as well as of the planning group, since he is the staff officer primarily responsible for the preparation and conduct of the exercises. The player group, which

will act as division headquarters during the conduct of the exercise, consists of the remainder of the division staff, plus selected officers from subordinate headquarters. In this way, junior commanders and staff officers are given an opportunity for training at the division level. At the same time this organization is taking place, a chief umpire is tentatively selected and charged with the responsibility for the preliminary arrangements necessary to insure a smooth and efficient working of the umpire system.

The organization just described is particularly applicable to command post exercises held during the later phases of a division training program. Whenever possible, the earlier division exercises should be planned and directed by a headquarters higher than the division, so that the members of the division staff can receive training in their regular jobs during the play of the exercise.

Preparation of the problem—Based on the directive, the planning group prepares the problem to bring about the type of operation or instruction desired. The problem consists of a general situation, a special situation, and a requirement, together with any necessary troop lists, staff estimates, or studies on terrain and weather. How much of this material is issued in written form depends upon the size and scope of the exercise. In the smaller exercises, play may be initiated, after an oral briefing on the situation, by the issuance of oral orders to subordinate commanders. For divisions and larger units, the problem must be in written form.

The form employed in the preparation of the problem is the same as for any other tactical exercise (see Field Manual 21-5). The situations are drawn so that a logical solution of the requirement will initiate the play of the exercise along the desired lines and will lead to a correct illustration of the principles to be taught. Special attention and much ingenuity are required

to write these situations so that they will present a challenge to the players. If the principal decisions are already made, plans nearly complete, logistical support adequate, personnel complications minimized, and the operations proceeding favorably, the challenge is practically removed from the problem and a minimum of player activity will result.

In drawing up the situation for the exercise, great care should be taken in formulating the mission. The mission must be stated clearly and in definite terms if decisive action along desired lines is expected of all commanders. All features of the situations should be coordinated with the mission. Ordinarily, a situation should not be developed which will require a commander to abandon his mission. The background should be stated briefly in the general situation. Initial locations and dispositions should be announced, the mission stated, and the administrative situation in the special situation indicated. The requirement need only be sufficient to start the exercise.

Preparation of the scenario—Based on the problem, the planning group prepares a scenario for the exercise. The scenario is nothing more than the planning group's concept of how the exercise should develop in order to emphasize the desired principles or lessons. It sets forth the phases into which the exercise is divided, the time schedule for each phase, and an outline of the action expected during each phase. It may contain prepared messages or orders for dispatch at designated times to designated headquarters. The amount of detail included in the scenario depends upon the desires of the commander and the purpose of the particular exercise. If the purpose of the exercise is to develop coordinated training, a very general scenario is preferable since it allows greater freedom of play on the part of the participants. If, on the other hand, the purpose of the exercise is to correct specific deficiencies in

training or to emphasize specific features of training, then a more detailed scenario will be required. The scenario may be prepared in illustrative form on a map or overlay, in narrative (outline) form, or in a combination of these two methods. The scenario is distributed to the directors and umpires, but not to the players.

Selection of umpires—Umpires are designated early enough to permit any necessary training and to permit them time for orientation and study of the problem and scenario. During the first of a series of division command post exercises, most of the umpires should be provided from sources outside the division. This permits the training of commanders and staff officers in their regular positions before attempting to train alternates for these positions, insures that these exercises will accomplish their primary mission of developing the headquarters into teams, and provides the division with an impersonal and valuable source of criticism of its operating methods and techniques. For later exercises, most of the umpires may profitably be selected from the division itself. This is particularly true of exercises held as a testing medium for field exercises or maneuvers. In their position as umpires, key commanders and staff officers will be in a better position to supervise the exercise and to detect any deficiencies in the problem revealed by the play of the exercise. This opportunity to become familiar with the whole problem and to detect and correct deficiencies will result in better play during the field exercise.

Reconnaissance and orientation—In accordance with the general and special situations, arrangements are made for the necessary reconnaissance before the start of the exercise by the commanders and staffs participating and by the umpires. Provisions are also made for a general orientation lecture for all officers just before the exercise begins.

Administrative arrangements—Since the

division can usually meet all of its own requirements, the administrative plan on the division level is relatively easy to prepare. However, when a command post exercise is conducted on corps or higher level, consideration must be given the following:

Signal communication system and personnel.

Clerical assistance.

Messing, quarters, and like arrangements.

Transportation.

Maps.

Installation of command posts for umpire groups.

Rents and claims.

Publicity and public relations.

Preparation of the training memorandum—A training memorandum should be published about a month prior to the exercise. The following list of items may be contained in this memorandum.

1. Announcement.—A brief statement of the time and place of the exercise.

2. Purpose.—Pertinent extracts from the directive defining the objective and scope of the exercise.

3. Troops participating.—List of units taking part in the exercise, including those individuals or units to be excused from the exercise.

4. Uniform and equipment.—Statement of the uniform and individual field equipment for the exercise.

5. Tactical situation and requirement.—A brief statement of the initial situation and requirement to permit subordinate units to plan effectively their training and administrative arrangements.

6. Control measures.—Sufficient explanation of the control measures and ground rules to insure understanding of the control system by the participants.

7. Records.—List of records, such as unit journals, operations maps, and reports which units are to forward to division after the exercise.

8. Critique.—Statement of who will attend, and where and when the critique will be held.

Critiques.—No exercise should ever be concluded without a critique. Plans for the critique are announced in advance of the exercise. The plan should include, in addition to the time and place, a statement of the personnel to attend, and, if necessary, instructions for critiques by subordinate headquarters. Critiques should be held as soon as practicable after the exercise is completed. As a matter of standing operating procedure, an agenda for the critique should be prepared. Critiques should be begun at the scheduled time, should follow the agenda, and should be held in a location which will permit everyone to see and hear clearly and to be relatively comfortable. The larger the group the greater the care which must be exercised in selecting the place for the critique.

The agenda for the critique should provide for a brief orientation by the G-3, or principal assistant to the exercise director. In this orientation, he should outline the purpose of the exercise, the principles that were to be illustrated, the instructive aspects of the planning, and the expected development of the play. Selected subordinate commanders should briefly point out the lessons learned from the exercise. The chief umpire should point out the principal tactical lessons illustrated by the actual development of the play and any methods or measures which might have given better results. The higher commander usually concludes the critique, emphasizing the tactical principles and lessons learned from the exercise. In all cases, the critique should be brief and cover salient features only. A rehash of the action serves no purpose and only bores the participants. The fewer the speakers at a critique the better.

Summary

In summary, the following points are of

special importance in the preparation and conduct of command post exercises for divisions and larger units:

1. Each exercise should have as its mission the accomplishment of a particular training objective.

2. The tactical situation should be drawn up to illustrate certain principles; it should be adapted to the size unit involved and to the terrain.

3. Large-scale exercises should not be

attempted until proficiency has been attained in small-scale exercises.

4. An adequate number of qualified umpires must be detailed for the exercise.

5. A critique must be held as soon as practical after the completion of the exercise.

6. Although the G-3 is primarily responsible for the preparation and conduct of these exercises, all members of the general and special staff contribute to their success.

For most men, the matter of learning is one of personal preference. But for Army officers, the obligation to learn, to grow in their profession, is clearly a public duty.

General Omar N. Bradley

It must be remembered that the purpose of education is not to fill the minds of students with facts, it is not to reform them, or amuse them, or make them expert technicians in any field. It is to teach them to think, if that is possible, and to think always for themselves.

Dr. Robert M. Hutchins

MILITARY NOTES

AROUND THE WORLD



UNITED STATES

Guided Bomb

The chief of the Air Matériel Command predicted recently that the Air Force would have ready for operational use within a year a 12,000-pound bomb—about the estimated weight of an atomic bomb—that can be guided all the way to a target.

It was also announced that:

1. United States aircraft engineers and manufacturers have the know-how to produce operational faster-than-sound combat planes now. The Air Force plans to wait until at least three more experimental models similar to the supersonic X-1 rocket plane have been tested.

The X-1-A, now being built, is designed to fly 1,700 miles an hour. The X-1 has been flown many times at speeds "several hundred" miles an hour faster than sound.

2. The conventional machine guns on interceptor fighter planes will be replaced within a "relatively short" time with rocket missiles having a built-in radar homing device. This device will guide the missile right to an enemy bomber, regardless of the bomber's evasive action.

These rockets will be launched several miles from an enemy bomber, track it down at supersonic speed, and explode within lethal range by means of a proximity fuse.

3. American research engineers have made progress recently toward develop-

ment of devices to guide missiles with speeds up to 700 miles an hour and ranges of 5,000 miles. But pinpoint accuracy has not yet been reached, and "push button" warfare with such guided missiles is still in the rather distant future.

4. Research engineers are working on development of a multi-stage rocket missile capable of a speed of about 4,000 miles an hour. Development of such a missile is not likely before perhaps a decade. It would be launched from the ground in defense against an attack by missiles approaching from beyond the earth's atmosphere.

5. Aerial cameras have been perfected that will take clear detail pictures at altitudes from 40,000 to 100,000 feet.

6. The Air Force has abandoned research on piston engines. Twelve new jet engines—including turbo-jet, turbo-props, ram and pulse jets—are being developed.

7. Several new experimental jet bombers are being developed. They include a light bombardment type for support of ground forces, a long-range heavy and a medium bomber to replace the "workhorse" B-29s and B-50s. The experimental heavy bomber, if successful, could replace the B-36, now the world's largest bomber, which has six piston and four jet engines.—*The New York Times*.

Faster Than Sound

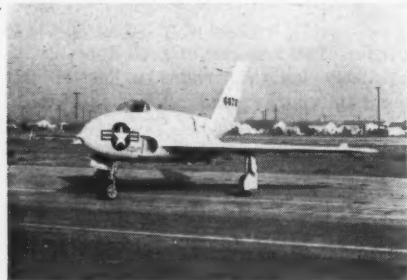
Scientists of the National Advisory Committee for Aeronautics (NACA) are dropping weighted models from airplanes and thus approaching in a new way the problem of transonic and supersonic flight.

The scientists resorted to the dropping or free-fall technique because, in the transonic range, wind tunnels are choked by the high-speed air current driven through them.

In the free-falling research method, 1,000-pound bodies with model wings and tails attached are dropped from a height of about 40,000 feet. Maximum speeds range from 1.4 times the speed of sound without a booster to 1.8 times the speed of sound with a booster.—*The New York Times*.

Subsonic Research Aircraft

Sharply swept back wings and a single vertical fin for a tail are the chief identi-



Northrop X-4 jet aircraft.

fying characteristics of the US Air Force X-4 research airplane recently completed by the Northrop Aircraft Corporation. The plane, powered by two jet engines, is designed for experimenting in the subsonic zone, that "trouble zone" just short of the speed of sound. Its wing span is approximately 25 feet, the length about 20 feet, and the height about 15 feet. Gross weight is approximately 7,000 pounds.—US Air Force photo.

Rebuilding Vehicles

Army Ordnance installations in the United States Zone of Germany have rebuilt and reclaimed vehicles, engines, tools, tires, and miscellaneous machine parts having a total estimated original cost of more than \$110,000,000 in the past 2 years, the Department of the Army announced recently.

Cost of replacing this equipment at present prices is estimated at \$220,000,000. Restoration was accomplished at an expenditure of approximately \$35,000,000, including \$5,250,000 for American materials, and \$29,750,000 for German labor and German materials.

Working with stocks of American war materials that remained in Germany after substantial quantities had been shipped back to the United States or transferred to allies through the Office of Foreign Liquidation, Ordnance shops in United States-occupied Germany rebuilt nearly 38,000 vehicles and trailers of all types in the 2-year period ending 1 April 1949.

In addition, some 300,000 tires, 93,000 tubes, and thousands of engines, transmission assemblies, axles, and other automotive parts and Ordnance supply items were rebuilt, reclaimed, and returned to depot stocks in serviceable condition.

The contributions of the huge "rebuild" program in support of the Berlin Airlift and its benefits to the German economy have been important. From reserve stocks of tractors, trailers, and automotive parts supplied by the program, Ordnance outfits were able to re-equip or replace without delay the more than 1,000 Air Force vehicles and truck-tractors and trucks of seven heavy-truck companies engaged in out-loading at the Rhine-Main and Wiesbaden fields and off-loading at the Berlin terminus.—National Military Establishment.

Assault By Helicopter

Less than 4 years after the Japanese surrendered, the United States Marine Corps has nearly perfected an entirely new invasion technique. It eliminates the necessity for costly frontal assaults on heavily defended objects and counteracts the threat of atomic bomb attacks on large invasion fleets.

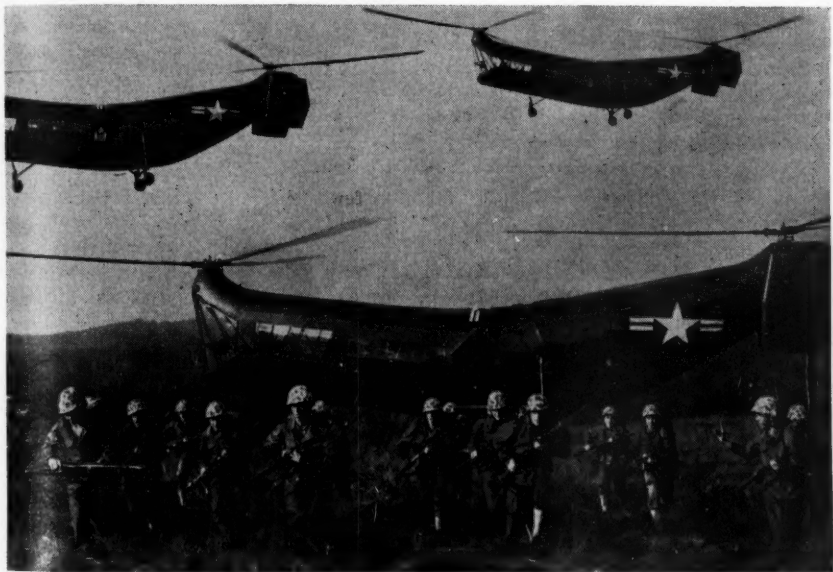
The technique features the use of troop-carrying helicopters protected by Marine

copters may be summarized as follows:

1. The invasion fleet may be dispersed, thereby avoiding the dangers of aerial attack against a concentration of ships.

2. Troops may be put ashore more quickly and at almost any point desired, rather than on the only beach which might be available for an amphibious assault.

3. Troops put ashore from carriers out of sight of the objective would have the



US Marine Corps troops landing from an assault helicopter in a demonstration of new invasion tactics.—US Marine Corps photo.

fighter-bombers flown by pilots especially trained in tactical air support.

In the opinion of most Marine Corps planning officers, helicopters will replace the relatively slow, vulnerable assault boats which spearheaded the major amphibious operations of World War II.

The advantages gained by using heli-

advantage of surprise and could be supported by other troops landed in the more conventional manner and equipped with heavier weapons.

The aircraft used in this demonstration were Marine transport-type Piasecki HRP-1 helicopters, capable of carrying 10 men plus the crew.—*Armed Force.*

Alaska Radar

The Air Force recently announced a plan for the substantial strengthening of its radar aircraft warning system in Alaska.

The sharp increase in radar control and warning personnel is understood not only to signal the over-all strengthening that is due in the aircraft defense system in this country's northernmost outpost, but also to carry out what has been described as a "shift in emphasis" from the outlying Aleutian Islands to the Alaskan mainland.

It is understood that the strategy shift will relegate the Aleutians to a relatively minor naval role, while the mainland air bases will assume the burden of United States military security in that region.

Air defense command officials said that the strengthening of the Anchorage radar control and warning unit was not part of the \$161,000,000 radar warning system for the nation or the joint United States and Canadian network now under discussion.—*The New York Times*.

Personnel Policy Board

Another step has been taken in unifying the Armed Forces with the establishment of a Personnel Policy Board for the entire Military Establishment. It has been set up in the Office of the Secretary of Defense with a civilian expert as head. Duties of the new board are: To develop sound, progressive, and, where desirable, uniform policies for civilian and military personnel of the Military Establishment; to coordinate civilian and military personnel activities of the several branches of the Military Establishment; to consolidate numerous interdepartmental boards and committees now concerned directly with civilian or military personnel policy matters; and to conduct or sponsor studies of matters affecting military and civilian personnel of the services.—*Report to the Army*.

Incendiary Tack

A device to blow out the tires of enemy vehicles or airplanes has been disclosed by the US Patent Office. It is called an "incendiary tack" by its inventor.

The device consists of a sharp-pointed tack inside a thin shell of metal or plastic, surrounded by a charge that will set fire to any tire that crunches down on it. In its simplest form, the device would consist of a charge of thermite mixed with pitch or other sticky, inflammable material. This would not only burn a hole in the tire but would also scatter flaming bits backwards, forwards, and upwards as the tire burned.

Another version of the tack would be hollow with a small container of gasoline. When struck, the hollow tack would act like a hypodermic syringe, injecting gasoline into the tire. A few turns of the wheel later, a thin disk would be worn through, exposing a concealed match-head charge to the scratching action of the road. The resulting flame would cause the air-gasoline mixture in the tire to explode.

The device could be planted by hand, strewn from the rear of retreating vehicles, or sprinkled from low-flying planes.—*Science News Letter*.

Dry Cell Battery

Development of a dry cell battery, using magnesium instead of zinc as one of its principal components, has recently been announced by the Signal Corps.

The new battery has approximately twice the capacity of the conventional dry cell battery. It can be manufactured by using the same machinery as used in the manufacture of the conventional dry cell type.

The fact that this battery uses magnesium, a noncritical material, instead of zinc, which is in fairly short supply, assures an adequate quantity of the dry cell batteries in the event of another national emergency.—Office, Chief Signal Officer.

Flush-Mounted Antennas

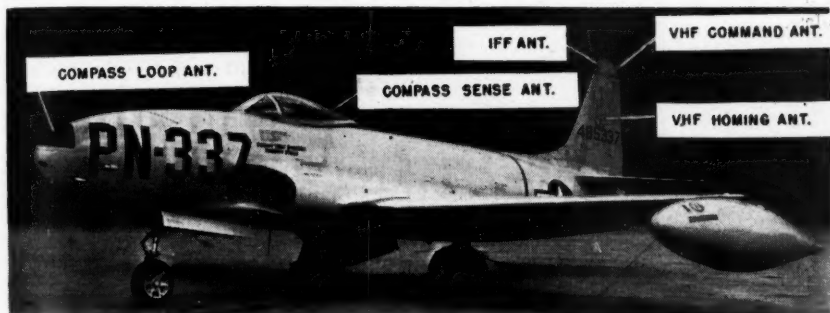
For speedy new planes, it became a "must" that slowing drag from the protruding surfaces of old-type radio antennas be eliminated. But the antennas, a vital part of communication and navigation, had to stay.

There was only one solution. The antennas had to "go underground."

First of the flush-mounted antennas was

metal sheet. Several other submerged types are set down into the aircraft structure and covered with a dielectric material.

The advantages of flush mounting are many. Most important is the elimination of drag. For example, a simple streamlined 1-foot antenna of the old stub type, protruding from a plane's surface, expended 200 horsepower at 600 miles per hour, or



F-80 jet fighter with various types of "buried" antennas as standard equipment.—Air Matériel Command photo.

the "pick axe" type antenna which rides inside the aircraft tail, protected by a plastic radome. Shaped to follow the conventional tail lines, it draws its name from resemblance to the familiar pick axe.

Other zero-drag antennas were developed rapidly, including the slot type which borrows an analogy from optics for its basic principle. In its most simple form, the slot type is a slit entered in a thin

the force required to pull two low-priced automobiles. With flush mounting, this useless expenditure of power is eliminated entirely.

Other advantages include the elimination of icing dangers, added protection from precipitation static, the sealing out of moisture, and freedom from the fear that external antennas will be broken off at high speeds.—Air Matériel Command.

3,000-Mile Range

The United States is negotiating with Great Britain for permission to fire supersonic guided missiles across the Bahamas.

President Truman recently signed a bill authorizing the Air Force to construct a 3,000-mile range (MILITARY REVIEW, June 1949 p. 68) for testing guided missiles.—*The New York Times*.

Titanium

A newly developed lightweight metal, titanium, much stronger than steel and only 60 percent heavier than aluminum, may become very useful in the entire field of warfare. Uses ranging from airborne weapons to supersonic missiles will be possible when the metal can be produced at a reasonable cost.—News report.

GREAT BRITAIN

Tank Bridges

Many different methods of getting tanks across obstacles, such as tank traps or ditches, were devised during and after World War II. Two of the more successful devices are those shown here. The top picture shows how a bridge is attached to the forward part of the tank, is hauled to the crossing site, placed in position, and then used by its carrier and other vehicles which follow.



The lower picture illustrates the use of a special vehicle which has no turret but is equipped instead with a ramp upon which other tanks will cross the obstacle. The vehicle with the ramp is driven into the ditch or tank trap, approach ramps are laid down, and the other tanks proceed to "leap-frog" the vehicle in the ditch.—*The Illustrated London News*.

Women's RAF

The original announcement made in February 1948 has now been confirmed, and since 1 February 1949, women have been enlisted and commissioned in the Royal Air Force. The title "Women's Royal Air Force" will be used as a collective term to describe serving airwomen. Women are now able to volunteer for most RAF trades, and they are trained side by side with airmen to the same trade standards. They have the same prospects of promotion to NCO rank as airmen, and have a similar disciplinary code.

Initial enlistment for airwomen is for 4 years, with opportunities of extending this to 10 years. A gratuity of \$140.00 is payable after 10 years' service. During their tenth year of service, airwomen may apply for reenlistment to complete 22 years with a view to obtaining a pension.

The normal commissioning policy will be to select a large proportion of officers from among airwomen for commissions. These women officers will be appointed on short service commissions generally for 4 or 5 years, with possible extension to 10 years. They will be employed in the technical equipment, secretarial, medical, dental, education, provost, and catering branches. Short-service commissioned officers will be eligible for permanent commissions. In the future, the assistant section officers will be given the rank of pilot officer.

Gratuity for the short-service commission will be at the rate of \$260.00 a year. Officers serving on permanent commissions normally will be eligible for retired pay by completing a minimum of 20 years' service after the age of 21.

Women with professional qualifications may be selected for direct appointment to short-service commissions in the medical, dental, education, and catering branches.—*The Aeroplane*.

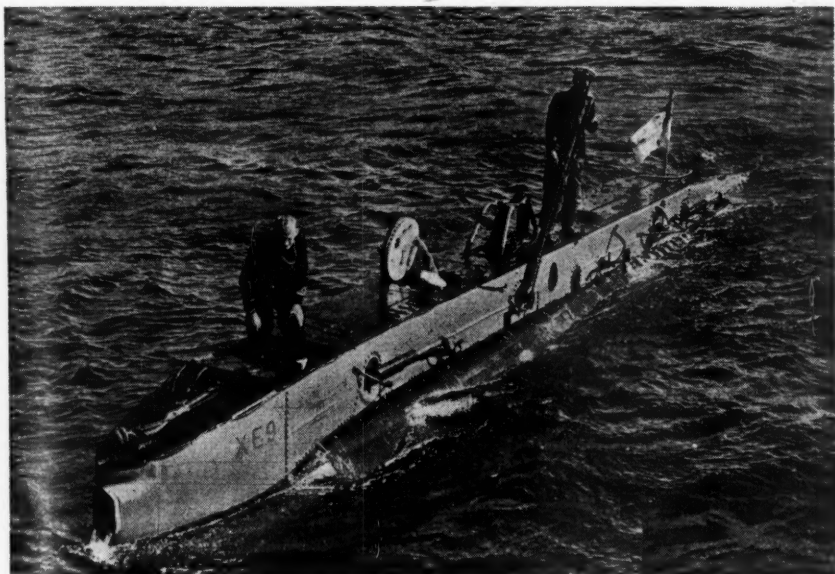
Midget Submarines

Since the end of World War II, little has been heard of the midget submarines of the Royal Navy. The small ships are, however, still in commission. They have taken part in recent naval exercises and have demonstrated their capabilities for harbor penetration and other duties for which such craft are most suited.

Among the most famous exploits carried out by these tiny craft during the war

they undertake severely tax the physical and mental qualities of the crews. It is a job for initiative and enterprise, as the war years so often proved.

Originally the "X" class of submarines consisted of 12 units, which were built in 1942 and later by Vickers-Armstrong Ltd. Two prototypes had previously been built at Portsmouth Dockyards. In 1948, four



A closeup of the British midget submarine XE 9. The tube amidships contains the periscope and a microphone for communication with the interior of the vessel.

were the attacks on the German battleship *Tirpitz* in the Kaaford on 22 September 1942; the cutting of the Singapore-Saigon sea cable during the war against Japan; and the attack on the Japanese cruiser *Takao* at Singapore.

Service in the midget submarine is essentially a young man's job, for the cramped quarters and the special tasks

of the midgets—XE 7, 8, 9, and 12—still remained in service. These vessels have a displacement of between 30 and 40 tons and are 53 feet in length. They carry a crew of three to five men. Each vessel has one Gardner engine for surface power, and one electric motor for propulsion while submerged. Their speed is said to be about 6 knots.—*The Sphere*.

USSR

Soviet Navy

Russia's Navy is more of a defensive weapon than an offensive weapon at present, but may not remain so permanently.

Even the possession of some of Germany's "Schnorkel" submarines, plus others which they may have built with the aid of German naval experts, will not release the Soviet Navy from its ties to the land for some time to come.

Historically, the Russian Navy has always been an adjunct to the Army. From the days of Peter the Great, Russian ships have acted more as mobile extensions of static shore fortresses, rather than as independent, far-ranging fleets. This subordination of Navy to Army has even gone to the extent of arming Russian warships with guns of land-artillery calibers.

Regarding the adaptability of Russian men to operate and maintain modern ships, conflicting testimony has been presented. Some experts state that Russian crews function smoothly and efficiently, keeping up the tradition of a "taut ship." Others declare that they are not very apt in learning the enormous amount of mechanical detail that goes into the making and handling of a modern warship.

There seems to be this much agreement, however: the Soviet Navy of today shows a vast improvement over the "bewildered and barnacled" ships of the old Czarist fleet that were trapped and sent to the bottom by the Japanese Navy at Tsushima strait in 1905.—*Science News Letter*.

AUSTRALIA

Radioactive Deposits

Government geologists reported recently that they had discovered highly radioactive mineral deposits in central Australia and might be on the trail of a vast uranium field. The deposits were discovered 200 miles northeast of the town of Alice Springs.—*The New York Times*.

HOLLAND

Atom Smasher

A small atom smasher with a 9,000,000-electron-volt punch has been built at the Philips Research Laboratories in Holland. It is so light and easy to handle that it can be taken to a job instead of moving the job to it.

This new type of betatron, a device for speeding up electrons to high energies, has no heavy and expensive iron yoke with which such machines are usually constructed.—*Science News Letter*.

IRAN

Military Aid

The United States, upon the request of the government of Iran, made available to the government of Iran military advisors in two missions, established under emergency powers granted to the President during World War II.

The United States Military Mission with the Iranian Army was established in September 1947. It consisted of 22 officers and 14 enlisted men at the end of October 1948. The mission furnished advice and assistance to the Iranian Ministry of War and its several departments. It also advised sections of the general staff with respect to plans and problems concerning organization, administrative principles, and training methods.

The United States Military Mission with the Iranian Gendarmerie was established in August 1943. The purpose of this Mission is to advise and assist the Iranian Ministry of Interior in the reorganization of the Imperial Iranian Gendarmerie.

To provide Iran with the means of maintaining internal order, the United States entered into an agreement to sell to Iran 10 million dollars' worth of surplus military equipment on a credit basis. The equipment includes modern fighter-type aircraft, light tanks, armored cars, and light artillery weapons.—*Annual Report of the Secretary of the Army*.

FRANCE

Atomic Research

France will produce its own radioactive elements for treating cancer and other diseases, although it has no intention of making atomic bombs.

Dr. Frederic Joliot-Curie, leading atomic scientist of France, said that perhaps within 2 years, when a second atomic pile is put into operation, it is hoped that France will be self-sufficient in radioisotopes for medicine and industry as well as research.

Dr. Bertrand Goldschmidt of the French Atomic Energy Commission explained that the new French atomic pile would have to run 50 centuries before it would produce enough of the man-made element, plutonium, for one atomic bomb.

France's present atomic pile, aside from being the first known to be in operation outside of English-speaking countries, is unique in technical respects. It is called, technically, a heavy water-uranium oxide pile, first of its kind in the world. Brown oxide of uranium is used as the raw material for the operation of the pile, instead of the pure metal.—*Science News Letter*.

BRAZIL

Military Air Transport

In 1931, the Brazilian Minister of War decided to use military aircraft to transport mail and passengers, thus creating the Military Mail Service. The first trip was made on 12 June 1931 between Rio de Janeiro and Sao Paulo and the mail bag contained only two letters. By the end of that year, 61 passengers and 16,000 pounds of cargo had been flown a total of 1,080 miles.

From this modest beginning has arisen the present Air Transport Command. In 1948, the ATC carried 34,696 passengers, 215 tons of mail, and 2,080 tons of cargo a total distance of 3,185,000 miles.—Brazilian news report.

GERMANY

Jet Bomber

At the end of World War II, the Germans were striving to take advantage of the swept-wing idea in aircraft designing. They had produced numerous experimental aircraft with this futuristic shape.

Their first swept-wing jet bomber—the Junkers *Ju-287*—had its wings swept forward instead of to the rear as is the case with present-day designs.

It is understood that Russia captured the Junkers factory at Dessau intact, stripped it of all tools, dies, and jigs, and transported the engineers and other personnel to Russia. They also captured



Ju-287, showing swept-forward wing.

several *Ju-287* prototypes which had been built. Rumors indicate that they are building more of the same type of plane.

The *Ju-287* had a span of 64 feet and was 58 feet long. Its gross weight was 50,100 pounds, with an estimated top speed of 515 mph. It had a cruising speed of 465 mph and a range of about 1,000 miles with a bomb load of 8,800 pounds.

If the Russians are producing this airplane from the German plans, they undoubtedly are using jet engines of higher thrust than those used by the Germans, and the airplane's performance can be expected to have increased accordingly.—*Flying*.

LATIN AMERICA

Military Missions

One hundred fourteen officers and 112 enlisted men are assigned to US Army missions and commissions in 13 Latin American Republics. Established by executive agreements and treaties between the United States and the respective governments, these Army missions assist their host countries in military organization and training and promote cooperation in Western Hemisphere defense. During 1947-1948, seven mission contracts were renewed, and negotiations were undertaken for missions in other Latin American Republics. These missions, having supplanted European military missions in Latin America, have done much to improve inter-American relations.

Army missions are administered by the General Staff, United States Army. Negotiations for their establishment, however, are carried on at the diplomatic level. Representatives of the Department of State and Department of the Army meet with representatives of the host government to formulate a contract, or executive agreement, which sets forth in detail the conditions under which the mission will operate.

The desire to become genuine good neighbors and the military necessity for securing the southern flank of the United States led to the mission program and to the growing inter-American defense plans. The first step was to destroy the prewar myth that continental armies are the finest in the world and to convince Latin American nations that the US Army could provide better professional assistance and instruction.

United States soldiers find Latin American military personnel friendly, exceedingly cooperative, and desirous of learning. Substantial progress has been made in teaching US military doctrines and practices.—*Annual Report of the Secretary of the Army.*

CANADA

Light Geiger Counter

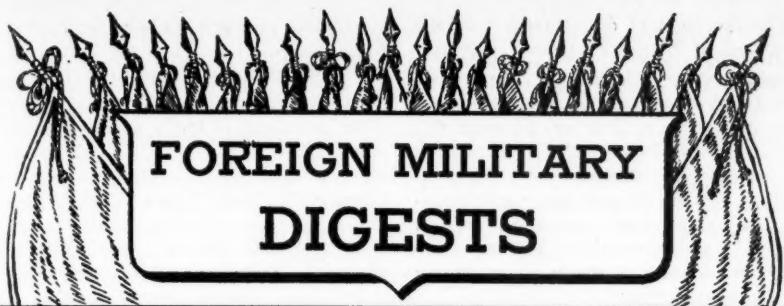
A 1-pound Geiger counter for uranium prospecting, developed by the Canadian National Research Council, together with several weighing from 6 to 11 pounds, will make possible a systematic search for this essential atomic energy mineral without the use of the much heavier Geiger counters now in use.

Radium and uranium prospecting before the war was largely a hit-and-miss affair, based principally on visual observation. Geiger counters eliminate the hit-and-miss method because this electronic instrument, now used for many years in detecting radioactivity, will register even trace amounts of radioactive substances. Several light-weight portable types have been developed since uranium has become so important in the atomic energy field, but none, as far as known, as light as the new Canadian 1-pound, pocket-size instrument.

The Geiger-Mueller tube, the heart of the counter, is small itself. Its power requirements at first were disproportionately large. Portable counters were made possible by the new miniaturizing technique used in the construction of electronic circuits.

The Canadian miniature Geiger counter can be lowered by cable into a deep drill hole in a search for any radioactive material through which the hole might have passed. One of the steps which had to be taken was to overcome the interference of the cable, which weakened and distorted the voltage pulse from the counter tube.

Success came at last only recently when it was discovered that the resistor coil in all circuits was needlessly large. It was found that the power of the resistor coil could be reduced to almost one-hundredth of its previous power.—*Science News Letter.*



Psychological Warfare and the Soldier

Digested by the **MILITARY REVIEW** from an article in the
"Australian Army Journal" (Australia) August-September 1948.

DURING the American Civil War, a Confederate general wrote to his opponent protesting in firm but courteous terms against the latter's "unsoldierly conduct" in causing printed invitations to surrender to be distributed in the Confederate lines. The Federal commander replied in equally courteous tones, pointing out that, after all, he was only trying to induce rebel soldiers to return to their proper allegiance.

Early Developments

The use of propaganda to further political and military aims is as old as history itself. The insidious weapons of rumor, persuasion, and blatant intimidation were employed long before the dawn of the Christian era. The Greeks used them to the limit of their meager resources. "Divide and Conquer" became a cornerstone of Roman policy. Napoleon climbed to power in the guise of the champion of the suppressed people of Europe, the apostle of revolutionary reform. And Napoleon, even when his Grand Army stood poised for the invasion of England, had his admirers in the British Parliament.

Improvements in the means of waging psychological warfare marched parallel

with the improvements in the more visible weapons of war. Nevertheless, it remained for Leon Trotsky, collaborator of Lenin and organizer of the military victory in the Russian civil war of 1917-1920, to relate in precise terms his "Strategy of Disintegration" to the more orthodox military methods of gaining political ends.

Trotsky visualized war as a continuous process which would cease only when all the people of the world had been incorporated in the communist, stateless society. In this struggle, the armed forces had two functions:

1. To support psychological warfare operations by the ever present threat of physical violence.
2. To confirm, if necessary, after a short, sharp struggle, the victory already won by psychological attack.

In the Trotsky concept, peace simply could not exist until the communist victory was complete throughout the world. Until that conclusion was reached, psychological warfare would not cease for an instant. Any armed clashes which occurred during the struggle would simply be superimposed on the psychological assault. Trotsky saw these armed conflicts as victory marches for the Red Army, against opponents already weak-

ened to the point of disintegration by the operations of his psychological experts.

Concurrently with the development of these theories, means for their practical application were piling up all over the world. Thousands of radio transmitters and millions of listening sets, improved facilities for travel and intercommunication, centralized press agencies, movies, improved printing methods, and an ever-increasing supply of paper, were among the means developed.

Along with the means, skill in their use had also developed. The growth of advertising produced men who could predict mass reaction with some accuracy, men who applied scientific analysis to the preparation of their message and the choice of methods for transmitting it.

The German Nazi Party adapted Trotsky's theory to their internal struggle for political power. As soon as this goal was reached, they applied it to the conversion of the German people to the Nazi ideology. Next, they applied it to the attainment of their ultimate aim—German world rule.

The Pre-Belligerent Phase

In the pre-belligerent phase of their psychological war, the Germans sought to weaken and destroy opposition to their aims by a wide variety of means, some simple and direct, others tortuous and subtle. The basic idea behind all these efforts was:

1. To intimidate the immediate victim by violence and threats.
2. To placate, weaken, divide, and because more remote victims.

For the performance of these tasks, the Reich Ministry for Propaganda and Popular Enlightenment recruited a large and highly qualified professional staff. Nothing was too big or too small for these people. They spread their net in all quarters of the globe, and at all levels of society. The activities of each agency were nicely

calculated to work on the predilections, the hopes, the fears, and the ambitions of the individuals and groups to be influenced.

In the case of the immediate victim, these activities took the form of political and economic agitation. In the long-range plan, however, more subtle methods were adopted. There the immediate aim was to create the impression that the Germans were peaceful, ordinary people attending strictly to their own affairs. The rumpus going on at odd places near Germany was nothing to be alarmed about and was not going to worry anyone. The long-range aim was to convert indifference to admiration, and, wherever possible, active support for the Nazi system.

In nearly all cases, the Germans sought to transmit their propaganda through individuals not directly connected with the Nazi Party, or even with Germany. In fact, the more remote the connection the better. Many innocent people fell into the trap and became disseminators of Nazi propaganda. Through the unwitting agency of people with a genuine love of Wagnerian music, and students of German art, literature, and science, many people were made to feel about Germany exactly what the Nazi wished them to feel. Cultural relations clubs, pen friends, and photograph exchanges all helped to spread the gospel. Well-written magazine articles and excellent documentary films helped to show the marvelous job Germany was doing in solving her economic and social problems.

In every country, there are people who feel that society has not recognized their true worth. Every group contains its greedily ambitious member. People like this lent a ready ear to Nazi blandishments and came to see society being molded nearer to their heart's desire by the wizards of Berlin.

These schemes worked. They worked to a greater or lesser degree of success in every country touched by the Nazi net.

Why do these things happen in a demo-

cratic country? They happen because a democratic community is naturally a tolerant community. The average democrat is concerned chiefly with minding his own business, and assumes, somewhat naively perhaps, that other people are doing the same thing. He is accustomed to political cranks, economic cranks, and cranks without any particular classification. Very often he is a bit of a crank himself. That is to say, he has a hobby or an interest on which he considers himself to be an authority, and about which he is willing to talk to anyone who will listen. He good-naturedly accords the same privilege to others. In the days before the war, he saw no harm in listening politely to a mild defense of German actions. In the process of mowing the lawn before dinner, he forgot all about Germany. But later on, if the subject came up in casual conversation, he was not unlikely to repeat his neighbor's opinion, possibly from no other motive than a desire to contribute to the discussion. If he had the reputation or the air of an educated person, he probably made another convert who was at least ready to say, "It is no business of ours anyway."

Or take the case of a camera fan who began to exchange photographs with an unknown amateur or camera club in Germany. In his enthusiasm for his hobby, he slipped by easy, imperceptible stages from an admiration of German camera technique to an admiration for Germany and the Germans. How was he to know that the pictures and letters that came to him from the other side of the world were prepared by professional experts?

The Belligerent Phase

If the outbreak of hostilities closes some avenues of propaganda, it opens up new ones and removes certain restrictions from some of the methods previously employed. Thus, the distribution of literature and the exchange of correspondence

comes to an end, or can only be carried on surreptitiously and at great risk. Cultural groups and other good-will associations are smothered by defensive measures and public opinion. On the other hand, all restrictions come off the radio; you can say what you like about the other fellow.

As well as attacking each other's morale, the belligerents now intensify their efforts to attract neutrals to their cause, or at least keep them neutral. All the old avenues are open in this sphere, and, in addition, great play can be made with suitably doctored news of military operations.

The German Radio War

The Germans started World War II with a radio propaganda organization in being. All they had to do was to adapt their techniques to the new conditions. In doing this, they showed considerable skill, although their failure to appreciate properly the psychology of other peoples, notably the British, led them into some amusing blunders.

So long as the Germans held the initiative in field warfare, they held first priority with radio listeners in friendly and neutral countries. While the Nazis held the initiative, their official communiques seldom departed from the truth, although they naturally played up favorable situations in detail while glossing over unfavorable ones.

In the early stages, lack of coordination led the propagandists into promising military successes which did not materialize. This gave the British radio an opening for an effective counter-stroke. The Germans thereupon effected close liaison between the soldier and the propagandist, so that the radio people would discuss and predict only those things which the army was reasonably sure of accomplishing. There we see the exponents of psychological and orthodox warfare acting as a closely knit unit.

As a result of this close liaison be-

tween the soldier and the propagandist, the German radio won some good points. For example, during the brief Norwegian campaign, the German radio broadcast news of mythical British successes. As a result of this build up of hopes, the effect on morale in Britain, and on her friends in neutral countries, was all the greater when the crash came.

Throughout the war, German agents "planted" suitable news in German-controlled newspapers and radio stations in neutral countries. The German press and radio then quoted this news to other neutrals as representative of informed opinion in the country in which it had been published. Sometimes prominent people in those countries who had fallen under the German spell linked their names with these news items.

Leaflet Raids

Both sides began dropping leaflets and other literature on each other as soon as the outbreak of hostilities removed the impediment of this method of reaching the enemy people. In the early stages, the efforts of each belligerent resulted in a fiasco which strengthened rather than weakened morale. The Germans had been well-drilled in what to expect. When millions of Allied leaflets dropped on them, this was taken as a sign of British weakness. The lesson again is that strategic propaganda must be very closely coordinated with military events.

The British Effort

From the outset, the British realized that the inhabitants of the countries overrun by the German armies could still render valuable assistance to the Allied cause, provided they did not sink into a state of lethargic acceptance of defeat. The problem of maintaining morale in the occupied countries, and of eventually organizing physical resistance, demanded the establishment of means of more or less regular intercommunication. On the

one hand, the people of the occupied territory had to be kept informed of the real state of affairs in the outside world. On the other hand, it was necessary for the Allies to know what was going on inside the occupied country, to distinguish between secret collaborators and the people really engaged in underground resistance activities.

Despite efficient German countermeasures, the British effort, coordinated by their Political Warfare Executive, attained a high level of effectiveness. By means of secret radios, printing presses, and other means, the people of the occupied countries were kept informed of the progress of events, and their morale was sustained throughout the darkest days of the war. Liaison was maintained with the resistance movements, and their activities were closely coordinated with military operations.

Profiting from the lessons of World War I, the British conducted their psychological operations in neutral countries very skillfully. Throughout the war, they followed a policy of truth. They made no promises of early victories; neither did they understate the appalling difficulties of the way ahead. They acknowledged the desperate seriousness of their situation. Nevertheless, they succeeded in creating an impression of indestructibility. Amidst the welter of fear and shattered faith, the British alone seemed to be sure, so very sure, of themselves. This policy of truth and restraint, illuminated at intervals by the defiance of Churchill's speeches, proved a most effective counter to the German effort. Because the British did not minimize failure, they were able, in due course, to make effective use of any military victories that came their way.

In the Pacific, the native peoples overrun by the Japanese could not be expected to offer much active opposition to the enemy. However, an Australian inter-service organization succeeded in bringing

about a lot of useful passive resistance. This organization maintained the faith of the natives in the Allied cause and obtained from them much useful information about enemy movements. By persuading the natives to take to the hills, they deprived the Japanese of a large proportion of the local labor on which they depended. On the other hand, the Allies were nearly always able to call in the natives to provide labor for Allied operations.

Tactical Activities

In the tactical sense, psychological warfare means the propaganda aimed directly at the opposing field forces. Some of it is intended to lower morale and consequently, fighting efficiency. Some is aimed at inducing troops to surrender singly or in groups. The first object requires a long-range plan. The second may be attained by direct methods applied at any point where the situation is favorable. For any degree of success, both must be closely related to the general military situation and to the particular situation in the area in which the propaganda is applied. Both should be coordinated with the over-all strategic propaganda plan.

In the long-range tactical propaganda field, the Germans staged a very good radio effort. Generally, the Germans used their tactical radio to put on programs for Allied troops in selected areas. These programs came on the air at regular times and were really first-class entertainment. But the Germans managed to introduce into them very indirectly a note calculated to induce in the listener a longing for home and a feeling of hopelessness about his present situation. These programs might have been more dangerous if the German Army had been able to support them with military successes in the areas at which they were directed.

Both sides used leaflets and bogus newspapers extensively.

All belligerents attempted to win over

prisoners of war, if only to obtain information.

Were these efforts really worth while, or were they just so much waste of time? Exact figures are not available for the European theater, but it can be said with certainty that considerable success was obtained by the Allies towards the end of the war. In the Southwest Pacific area, statistics indicate that approximately 20 percent of Japanese surrenders were the direct result of tactical propaganda. Taking into account the toughness of the Japanese soldier, that figure must be regarded as significant.

The Post-Belligerent Phase

When the German Army was overrunning Europe, its advancing formations brought along organized psychological warfare units to complete the military victory by converting the conquered peoples to the Nazi ideology. They had some success, as the numerous postwar collaborationist trials testify.

The British and Americans, in the belief that government should spring from the conquered and liberated peoples, made no effective arrangements of a similar nature. But the Russians did. And they did it very thoroughly, too. In some of the countries overrun by their armies, they were able to install their communist nominees in power immediately. Thus, in Poland, the Russian-sponsored Lublin Committee assumed power despite the existence of a constitutional Polish government temporarily located in London. In Yugoslavia, the communist Tito displaced and executed Mikhailovitch. In countries where the constitutional elements were too strong to permit immediate seizure of power, they introduced teams of Russian trained communists, many of whom had been recruited from prisoners of war. In Germany, trained apostles of communism went into action almost on the heels of the forward units.

Postwar Developments

As the firing died down, the forces of psychological warfare came into full operation. All the old tricks of the Germans were brought into play, and more besides. World events since the close of hostilities indicate that the present effort shows more evidence of long-range planning, more skill, and more ruthlessness than the Germans ever displayed. One after another, the countries of Eastern Europe have fallen victims to the psychological assault.

Present-day activities follow the pattern set by the Germans. For the immediate victim, the line is intense agitation, intimidation, and violence. For the more remote victims, the policy is, on the one hand, persuasion and conversion, and on the other, undercover agitation and disruption.

Earlier, it was said that the great danger to be feared in long-range psychological warfare lies in democratic toleration, the feeling of personal security, and the desire to avoid arguments. We are all too prone to imagine that propaganda is confined to the activities of a few agitators and to be misled by the poor showing of certain candidates at elections. Actually, these open operations are, perhaps, the

least dangerous of all. The real work of conversion is being accomplished by hidden, indirect means, by odd remarks, chance conversations, literature—the real purpose of which is cleverly concealed—study groups, or documentary films. There is practically no limit to the means employed.

The first line of defense in the present stage of psychological warfare is not on the political platform, in the press, or on the radio. It is in the home, among one's friends and acquaintances. It lies in combating the chance remark, the odd twist to a conversation that seems to support the good intentions of our potential enemies. Since it is not sufficient simply to deny our enemies' undoubted accomplishments in many fields, we must always be ready to contrast them with our own infinitely better ones.

It is always dangerous to underrate one's adversaries. How strong they are in the military sphere, we do not know for certain. But their many recent successes have demonstrated all too clearly their capacity and strength in the realm of psychological warfare. Unless each individual makes it his personal business to combat these elements in his own sphere of activity, subversive influences will spread in Australia as they have in so many other countries.

Winter Experiences of the German Air Force Ground Units

Translated and digested by the MILITARY REVIEW from an article by Lieutenant General H. J. Rieckhoff, formerly of the German Air Force, in "Flugwehr und -Technik" (Switzerland) December 1948.

BY DEFINITION, the term "ground organization" of the air force means all forces and installations on the ground which are essential for the activities of the air arm. These include:

1. The airfield, plus fixed installations such as hangars, machine shops, repair hangars, depots, and quarters.
2. The ground services, which include

the maintenance personnel, auxiliary technical services, fire departments, flight control, guard personnel, and the supply and administrative services.

In a broader sense, the ground organization also includes the following: the air ordnance offices and aviation depots in the rear areas, fuel depots, aviation construction forces, and a large percentage of the

air signal service forces available to the air-traffic control service or the supply services.

The ground organization is an extensive structure with many branches. In addition to the air defense forces, it has always included the fighting personnel of the air force itself. In 1936 in Germany, it was estimated that 25 to 30 men were required in the ground service to keep one airplane in operation. During the war, ground personnel requirements underwent continual increase. In 1940, they amounted to 50 to 80 men; in 1941, to 100 to 120 men; in the winter of 1941-1942, to 250 men. Toward the end of World War II, 1,000 men per plane were required at the front or in the home area.

To be sure, this requirement curve varied. For example, in the summer of 1942, it dropped down in comparison with the preceding winter. During the autumn of 1942, a rise was the result principally of increasing technical demands. The great disproportion occurring later was caused by the marked decrease in strength of the German air units. Ratios also varied from place to place. They were better on those fronts where the air force temporarily established points of main effort. They were worse in those sectors where fewer units operated.

The Russian Campaign

The early arrival of winter in 1941 imposed unexpected and heavy burdens on the German ground organization on the Eastern Front. First, an attempt was made to meet these problems by employing additional personnel. But since the release of considerable ground personnel to be used by the hard-pressed Army was desired at the same time, the personnel requirements could be met only by conscripting Russians for labor purposes. Hundreds of peasants with their horses were put to work on all the flying fields to keep runways and approaches free from

snow, since the first and most important problem was to maintain the fields in operating condition.

In November 1941, snow nearly 3 feet deep was found in some places, and snowdrifts reached depths of as much as 5 feet on the level. Motor-driven snowplows were not available and the native wooden snowplows were inadequate for making roads and runways usable. Efforts were made to shovel the snow from narrow strips for take-off and landing. Only moderate success was attained. A runway 1,100 yards long and 55 yards wide contains 60,500 cubic yards of snow when the snow is 3 feet deep. If runways were to be used by medium and light aircraft, the snow cover had to be brought down to about 1 foot. A peasant's sleigh could carry only slightly more than a cubic yard of snow per trip. Since the amount of labor performed by one man was small, and the days were short, 3 days of work by 1,000 men were required to make a single runway usable under the most favorable conditions.

During the periods of heavy snowfall (November-December and March-April), the task became a matter of weeks. Even then, satisfactory results were not achieved. In addition, there was a scarcity of men and sleighs. Other important matters that had to be taken care of were the combat and occupation forces and the civil population. Broad expanses of territory lay beyond the airfields and these areas were dominated by partisans. Because of this, or because of the distances which had to be traversed, the inhabitants could not be conscripted. As a result, it soon became necessary to resort to other methods for keeping the fields clear.

A usable field was obtained most quickly by packing down the snow until it became firm. This method was employed by the Russians. Since tractors were lacking, horses were used. The Russian horse is small, poorly fed, and its pulling capacity is slight. On the other hand, its endur-

ance is astonishing. The weight of the rollers, which were constructed on the spot, had to be proportioned to the strength of the animals. Smooth rollers proved unusable. The snow stuck to them and prevented them from turning. The surfaces of the rollers were provided with teeth, and the airfields were gone over several times with these simple and fairly light devices until the snow was packed solidly enough to support a plane. Nevertheless, caution was necessary in taxiing and in take-offs to keep the planes from rolling beyond the limits of the runway.

In this way, a landing field could be made ready for use in a single day. The more the field was rolled, the better the landing area became. When a fresh fall of snow began, rolling was started immediately. If the snow was allowed to get deep, more time and labor were required. A snowfall at night could easily annul the work of an entire day and close the field. At such times, patience was required. The pressure from higher commands had to be firmly resisted, as premature take-offs on a field covered with a deep fall of fresh snow often resulted in accidents.

Generally speaking, minor ground and taxiing accidents increased after the first snowfalls. Low-wing planes proved to be at a disadvantage under these circumstances. Semi-high wing and high-wing planes were far superior. As soon as thawing began, new difficulties arose. Hard-rolled take-off and landing strips became glazed. Large pools of water formed on the fields. These pools froze during the night, but the ice was not able to support a plane the next morning. Planes suffered considerable damage to wing surfaces and tail structures through the impact of water and ice.

Russian Methods

The Russians evidently had had experience in these matters. They prevented flooding by constructing drainage ditches.

They even profited from the icy condition of the firmly packed runways. In fact, they elevated the runways, which made them usable in the spring when the surrounding earth had become soft. At the end of February, they began using slag on their runways. The slag was rolled into the snow. When the sun shone, it warmed the underlying snow, which thawed considerably faster than the surrounding snow. While the icy runway was still solid and usable, the slag runway had already begun to dry out. When the ice runway finally became too soft, the slag runway was put into use.

The Russians also constructed ice bridges across rivers. These continued to be usable even during the period when the snow was melting. The ice bridges proved to be much more solid than wooden bridges, which were usually carried away by the spring rises. The ice bridges were reinforced by laying bundles of sticks on them and by drenching them with water, which froze. The bridges were raised more than 2 yards by this method. Such bridges could support the weight of tanks even when covered by high water. It was difficult to destroy the ice bridges by aerial bombing or artillery fire, as their exact positions were hard to determine. The Russians constructed a supply route for Leningrad on a similar ice bridge across Lake Ladoga.

The methods used by the Russians were simple and practical. They are typical of the inventiveness and natural instincts of a people familiar with nature. In any case, the majority of the Russian flying fields remained intact during the spring of the year. Meanwhile, the German fields were worse than during the winter season. Many German air units were idle for weeks.

When the ground finally thawed, the German planes sank into the soft earth. The Russians had constructed corduroy roads at the proper time. The Germans



In the intense cold and snow of Russia, the Germans encountered many hardships but were slow to profit by Russian experience. Above, a German 2-cm AA gun used for ground firing, February 1942. Below, German troops constructing a corduroy road by standard methods which proved too costly in time and material.—US Army photos.



started this work too late. Preparation of the necessary timber was postponed during the winter. When spring arrived, it was difficult to transport the material over roads covered with water from melted snow.

The German and Russian methods of constructing corduroy roads also differed. The Russians laid down only wooden tracks. The Germans constructed regular corduroy roads. Timbers were laid trunk to trunk, crosswise of the direction of movement, over heavy timbers extending lengthwise to the direction of movement. The disadvantage of the German method was the enormous amount of material and the greater time required. Because such roads were uneven, taxiing was very slow.

The disadvantage of the Russian wooden tracks doubtless lay in their fixed gauge. The gauge was chosen with a certain type of plane in mind. The German command, which always tried to be ready for all possible situations, insisted that the old method of construction be continued in order that medium and light units might be used on the same field or be interchanged. Before the German corduroy roads were ready, the fields were dry.

The Russian is a master of camouflage. During the winter, the Russian command attached the greatest importance to deception. They used dummy planes and motor vehicles, deceptive activity, deceptive radio traffic, and other devices. Aware of this through statements of prisoners, the Germans also attempted to deceive the Russians. Little can be said with respect to the results achieved by these efforts. It was hard to deceive the Russian flier. The Germans encountered great difficulty in furnishing the detachments required to maintain dummy airfields. Because of the danger of partisan attacks, these detachments had to be fairly strong. At the same time, the partisans acted as informers. They kept the Russian air com-

mand constantly posted by radio concerning genuine and dummy installations.

Maintenance Difficulties

The main difficulties on the airfields developed when winter began. The northern and central sectors had the most snow and the lowest temperatures. In the winter of 1941-1942, the German main effort was made in those areas. Consequently, the most formations were stationed there. In the northern sector, there were only five, and in the central sector, only eight airfields equipped with permanent buildings. More than half of all the formations were stationed at temporary airfields. Nearly all the Russian hangars had been damaged during the fighting. Material for the necessary repairs was not available. Above all, undamaged heating plants could not be found anywhere. And so, nearly all planes in use were continuously exposed to the weather.

Canvas and improvised hangars were used, but the heating problem continued to be critical. The mechanics needed fur clothing, but it was not provided for them initially and months passed before it was approved and reached the field. There were not even enough fur gloves. The soldiers working on the planes suffered greatly from frostbite. Work capacity fell off, and the number of planes not in condition to be used increased steadily. Difficulties increased at the beginning of the cold season and then slowly decreased as the troops became accustomed to the cold weather. A certain amount of preparation can keep such difficulties within bearable limits, but the Germans did not prepare in advance for such conditions.

Milled lumber was required for the German barracks, and it was hard to obtain. On the other hand, the Russians built log structures out of roughly hewn timbers. The German barracks stood on piling. Their ventilation was excellent, but they were cold and drafty. The Rus-

sians built into the ground or provided roofs reaching to the ground. The snow formed a cover over these, keeping the extreme cold out. The conservative German method of building caused a great deal of trouble until the troops took matters into their own hands. They either refused the assistance of the German construction specialists and patterned their buildings after the Russian structures, or they had the Russians build the shelters for them.

When the higher German technical

this protection, two men, kept warm by a chemical stove, could work on the motor in comfort. Also practical were the "dog-houses," which were small wooden structures that could be heated. These were built on the principle of the Finnish tents and mounted on wood runners. They could be drawn either by horses or a motor vehicle to the place where work was to be done. Both men and tools were kept warm, and small technical jobs could be performed in them. The blowtorch proved to



The Germans used the small, rugged Russian horse (left) in maintaining airfield runways. Right, a German sentry on a wreckage-strewn Russian highway, February 1942.—US Army photos.

authorities did not interfere by introducing impractical methods and devices, the troops were often able to help themselves satisfactorily. They copied the so-called Finnish tents. These were light, plywood structures which could be quickly constructed from standardized sheets. They also copied the simple windbreaks of the Russians and found means of their own for protecting themselves and their aircraft from the cold. A pulpit-like structure was built which could be shoved on runners over the motor of the plane. The side away from the wind was either left open or covered with a tarpaulin. Under

be the simplest and most indispensable heater, although its use was contrary to all fire regulations.

Not every emergency solution by technical personnel could be called good. Such expedients as starting plane motors by using compressed air, with the air hose previously filled with a gasoline and ether mixture, or warming the motors with carbide, were dangerous to both equipment and personnel and had to be stopped.

Metal tools were unsuitable for use in the open at low temperatures. They had to be redesigned with wooden or rubber grips. Larger tools could be heated by an

electric battery. In emergencies, a blow-torch or an open fire could also be used for warming them.

Ground Transportation

Motor vehicles were affected by the cold as much as aircraft. In addition to the tragic incidents caused by vehicle failures during the winter retreats, reliable transportation and supply of the troops was frequently jeopardized by the great number of motor failures. At times, deep snow prevented all use of motor vehicles. Sleighs were conscripted as a substitute. Later, sleighs were constructed expressly for use by the troops. The Russian sleighs, which were small and light, were superior to those built in Germany. The latter were too heavy.

Motor sleighs driven by a propeller were delivered to the troops by the hundreds, but they proved to be a complete failure.

The failure of heavy tractors with broad treads also was a serious blow. The Russians were better equipped with tractors capable of operating in snow. Runners should have been provided for the many small, special vehicles required in the operation of an airfield. Much effort was required to move these narrow-wheeled vehicles through the snow. Because of the lack of light tractors, most of the pulling had to be done by men. This was a very unpleasant task for personnel already overworked.

Such things showed that little German thought had been given to winter mobility and that no practical research had been conducted along this line. Before 1941, probably no high German commander had thought of ever having to fight in the Russian interior. The consequences of this were now being borne by the troops. Unfavorable conditions constantly arose which interfered with the conduct of operations. It may be said that, on the whole, German motorized transport equip-

ment lacked capacity and there was not enough of it. That portion which was horse-drawn was too heavy and there was not enough of it, either.

The Russians, on the other hand, used the proper ratio of heavy to light vehicles, including many drawn by horses. As a result, they were able to have superior mobility in spite of the terrain and climate.

The critical supply problems of the German armies and air formations increased by simultaneous difficulties on the railway lines. There were many locomotive failures. While the Russian armies were assembling for the first counteroffensive, they were constantly supplied. At that same time, problems repeatedly developed on the German northern and middle sectors. At Klin, an entire fighter group was grounded because of the lack of gasoline and was captured by the Russians. In other sectors, operations had to be suspended because of the lack of fuel or bombs. It had become impossible to accumulate emergency stores.

The Russian railway system continued to operate smoothly and was uninterrupted except for very short periods. Russian repair units worked so rapidly that temporary interruptions of traffic caused by isolated bombings were corrected in only a few hours. This was done rapidly before German fighter formations could destroy the blocked railroad trains.

The Germans depended almost entirely on wire lines for signal communication. This proved to be a disadvantage. These lines were not only subject to damage by low temperatures, snow, and storms, but they required constant repairs. Many linemen were lost. Russian partisans shot the nearly frozen repairmen from the line poles. Also, partisans frequently cut the wires in isolated locations in which an attack on the repairmen could be made later. When pursued, the partisans easily withdrew into the dense forests. To them, the snow was a faithful ally. Generally

speaking, the Russians knew how to erase their trails. In the northern sector, wire line cutting was practiced so intensively that the lines were often usable for only 1 or 2 hours daily. Interruptions began soon after nightfall and repairs could not be made until daylight the following day. The results of such failures in highly important telephone lines, and the extent to which they slowed down command measures and prevented the units from taking advantage of favorable tactical situations, is quite obvious. Radio communication would have prevented these difficulties, but such equipment was not available.

Conclusions

When one looks back today, many of these things appear almost unbelievable. On the other hand, many of them are so simple and obvious that one wonders how such bad mistakes and blunders could ever have been made by the Germans. How can such errors, some of them actually ridiculous, be explained? When we stop to consider that the German National Defense Organization (*Reichswehr*) constantly maintained officer groups in Russia, from 1924 to 1933, the entire matter becomes still more incomprehensible. One is finally forced to explain the matter

by assuming that the average German, especially the German officer and technician, looked upon the Russians as an inferior race. They credited them with having very little ability or mental capacity. That the Russian should understand anything better than the German, that the Russian might be even superior in certain fields, was absolutely not to be considered.

And so, in many respects, the Germans were insufficiently prepared when they attacked Russia. In spite of this, the Germans still considered themselves superior, a feeling which increased after the first successful frontier battles. The thought that they could learn anything from the Russians never occurred to them. It was a long time before the Germans began to profit from their experiences with the Russians. Gradually, a certain feeling of respect began to enter into their thinking. The highest commanders of the German *Wehrmacht*, individuals who had never become acquainted with the difficulties on the fronts, did finally recognize the superior ability of the Russians in conducting winter operations. Aside from this, they persisted in their refusal to learn until they finally went down in defeat.

Experience teaches us that a war vehicle cannot yet be built that we can say operates in all kinds of terrain. Almost always the full efficiency of a weapon requires a special situation, under favorable circumstances. When this is achieved, the effects are powerful and devastating, but this is rarely achieved.

General Lopez Valencia, Spain

Staff Work

Digested by the MILITARY REVIEW from an article by Air Marshal Sir Thomas W. Elmhirst, Commander in Chief, Royal Indian Air Force, in the "Military Digest" (India) April 1949.

WHAT is good staff work? My own view is that it is "teamwork by competent officers" whose only purpose is to serve the front-line fighting men. How does one get this teamwork? I put loyalty to the chief first; without that there will be no teamwork and no confidence either at the headquarters or at the units under them. I do not put too high a value on brilliance in staff officers; I would much rather choose a competent, hardworking, loyal officer who is a good mixer. If a staff officer thinks himself too superior to talk to his confreres or juniors, he will not fit into any team, and the force will suffer. A staff officer who visits a unit with his "nose in the air" will neither help that unit nor draw out of the unit information (or gossip) that will be of use to the commander or staff of his own headquarters. Similarly, in a headquarters, if G-1 and G-4 are not on speaking terms, there will be no teamwork. Lower formations that take their cue from above will likewise be at odds.

Responsibility

Delegate responsibility as much as possible. The old business saying, "If you employ a man, trust him—if you don't trust him, sack him," is good advice. My wartime chief said, "Give your juniors full responsibility, but if there is one failure on the operational side, the man responsible must be sacked, as that means loss of life. Allow a second chance on the administrative side, but no more!" The success or failure of any force or staff largely depends on the leader's choice of his staff and junior commanders.

"Minutes"

I never write a minute to someone in the same building if I can possibly help

it. I either go and see the person or ring him up. There are cases where you have a busy chief whose office you cannot get into, or he is away on a tour. Then there is something to be said for minute writing, but not often. I once found a staff officer writing a long minute to an officer of the same department and same rank in the next door office with a dividing door in between! He did not do it again.

On the writing of letters and orders; the fewer, the better. The personal visit, the personal telephone call, confirmed by wire if the order is complicated, will usually be better. For example, I recall that within the 6 months between the fall of Tobruk and its retaking, which included a long retreat, the battle of El Alamein, and the advance to Benghazi, I wrote two administrative and supply plans and six official letters. One of the plans was for the retreat and the other for the advance.

Telephoning

If an officer is not capable of acting on a telephonic order, he is of no use. I once had a case in a crisis of an officer saying he must have my telephonic order in writing. I told him that all he would get in writing from me was an order for him to report to the base as being of no value in the field. If in your job it is necessary to telephone more than once to a strange department or officer, insure that you visit him so that you both know what each other looks like at the end of the line.

Regarding Secrecy

There should not be too much secrecy. I know of far too many operations and supply arrangements that were a failure because those taking part were not "in the picture." There are too many people who say "I cannot discuss this on the

phone." Too much secrecy in normal day-to-day operations handicaps everything. There is one vital secret that must be kept at all costs, and that is the shape and date of future operations.

The Right Channels

A good staff officer will *find, know, and use* the "right channels." One is always wanting something; it may be more men, airplanes, tanks, repairs, cars, food, whisky, or a cheap trip by air on leave. You can generally get them, and quickly, if you know the *right channels*. There is always someone who deals with your particular want. The thing is to find him, and not his senior or junior (the former will be offended).

Politeness

"Please's" and "thank you's" in wires or letters from senior to junior formations cost nothing and always pay in enhanced good feeling. And never be frightened of retracting an order, if necessary, the same day that it was issued, if you think the order was wrong. It is only the proud and inefficient officer who thinks his prestige will be lowered if he admits by wire or letter that he has issued a wrong order.

Confidence

A successful armed force is one where all formations and units in the force have confidence in each other and in the commander and staffs that run them. It is the duty of the superior formation to gain the confidence of the lower formation or unit, and not vice versa. Such confidence can best be obtained by the junior staff or unit knowing that the senior staff officers have been selected for outstanding work in lower formations, and by "visiting."

Time spent by staff officers on visits to units is never wasted. I have heard many staff officers say that they have so much in their "baskets" they could not possibly

get away on visits. My answer is: "Rubbish!" A visit will find out what a unit really wants, or why it is a good unit or a bad one. There are many things that a unit will want but not request "in writing," for, as they think, the superior headquarters is too busy. A visit will also find out whether the commanding officer or his staff are good or need changing, also what the unit thinks of the superior staff; perhaps it is they who need changing! A staff should have sufficient vehicles to enable officers to visit units when they so wish. And lastly, a visit should be made to help and not to find fault. If faults are found, action can come later. And visits should be "two-way." Unit commanders or staffs of lower formations should be encouraged to visit their senior headquarters staff.

A word on the bullying staff officer. You will always find them and they need rooting out. They usually bully down the telephone to juniors, who cannot talk back, and they are usually too polite to their seniors! But they breed lack of confidence and the negation of team spirit.

A staff officer should never take his chief's name in vain and use it as a stick to beat the lower formation or unit, such as, "The commander in chief is terribly annoyed." If the chief is annoyed, then it is he alone who should administer the reproof in person, in writing, or on the telephone. There is nothing a commanding officer of a lower formation dislikes more than to be "told off" by a staff officer of a senior formation, more especially if the "skin" is in writing and signed by an officer of equal or lower rank!

Then there is the policy of "the open door." A staff officer should be approachable and encourage visits by other staff officers or unit commanders. He should, if possible, have his door open and get the reputation of never being too busy to welcome a visitor. And conferences—as long as they do not happen too often—where junior commanders or staff officers can sit

around a table and put up their suggestions to their seniors—will always pay high dividends.

One of the most difficult jobs of staff officers is to be able to concentrate their attention on the essentials of their jobs. Often, a very great number of files and papers to read arrive in their "In" basket and a lot of it possibly is most interesting to "browse" through. But we have all only certain hours of daily work, and if we are going to keep our efficiency and health, it is inadvisable to stretch these hours too much. My advice is to concentrate on the essentials, "maintenance of the objective," and be quite ready to pass a lot of stuff from the "In" to the "Out" basket direct

as not pertaining to the job you are supposed to do.

Here is one other point on the daily work of the staff officer. Don't let dealing with the "In" basket be the daily sum of your work. I always say that 75 percent of an officer's time should be spent on current affairs, but that 25 percent of his time should, if possible, be spent in trying to find out how he can improve the "set up" that he has to deal with. [A newcomer to any job should have some fresh ideas that can improve a department or organization. He should not be satisfied with himself, when he vacates that job, if he has not got something new and valuable incorporated into the machine he has been a part of.

Russian Far East Defense

Digested by the MILITARY REVIEW from an article in
"The Irish Defence Journal" (Ireland) March 1949.

Type of Country

EAST of the Lena River and Lake Baikal in the bleak, mountainous region between latitudes 50° and 70° N., one of Russia's most thorough-going defense plans, involving land, sea, and air forces, is being carried out.

The most conspicuous topographic feature of the area is the Stanovoi Mountains. This range runs northeast from the Mongolian frontier, south of Lake Baikal, all the way to the Bering Straits. A parallel range extends from the tip of Kamchatka to the Gulf of Anadyr. Most of the territory is 3,000 feet high or over. The principal lowlands on the Pacific side are the valley of the lower Amur, the coastal strip east and southwest of Okhotsk, and the lowland of the Penzhina and Anadyr. On the north is the wide tundra of the Kolyma and Indigirka and to the west the extended valley of the Lena.

Although the area is mostly between the

latitudes of Bordeaux and Narvik, it has the most severe climate in the world. The temperature varies 120° F. between summer and winter at Verkhoyansk, the coldest place on earth, and at least 50° in other parts of Siberia.

In winter, the sea is frozen south of Vladivostok, about the latitude of Coruña in Spain. Even in August, the Polar Sea icecap is still in contact with the northern coast from Cape Shelagskii to Vankarem. Ice-free parts of the coast, though within the southern limit of drift ice, are found on the southern half of Kamchatka with its port of Petropavlovsk, the south and east coasts of Sakhalin, and the northern half of the Kurile Islands. The Southern Kuriles, and the Commander Islands off Kamchatka Bay, are outside even the limit of drift ice. The only satisfactory ice-free ports for the Russian Far East, however, are the "borrowed" ones of Dairen and Port Arthur on the Yellow Sea.

Except for the barren tundra of the broad northern coastal belt and of the mountain heights, the region is practically covered by forest, the only cultivated region being in the Amur and adjacent valleys.

Outside the Amur region, consequently, the population is very sparse. There are not more than two persons per square mile, mostly Mongol types in the country and Russians on the coast and in the new industrial centers. The valleys of the Amur and Upper Lena are, however, mostly inhabited by Russians.

Its Development

A marked feature of the Soviet war plan is the industrially self-sufficient army group. The Russian ground forces are divided into six such groups. None of the groups has done more to reach "logistic" independence than has the one in the Far East Command, in spite of the lack of resources.

East of the Lena was a wilderness inhabited by primitive Lamuts, Yakuts, and Tungus in camps and scattered settlements. The river valleys were thinly colonized by Russians from the time of Peter the Great until the Trans-Siberian Railway brought colonists to the valleys of the Amur and Upper Lena. Even up to 1914, agriculture was confined to these two regions. Among the most conspicuous achievements in subsequent years has been the discovery of a wheat which will grow in Arctic land. There has been a consequent pushing back of the limit of agriculture in this area to include the northern side of the mountain chain.

The obvious industries in the Far East are the preparation of furs and the handling of timber. The most important sawmills are on the lower Amur and its southern tributary, the Ussuri, down to Vladivostok. More modern industry is now carried on with the discovery and mining of coal in the Lena valley, at Irkutsk near

Lake Baikal, and in the mountains west of Komsomolsk. Iron ore is mined at Ulan Ude, Nerchinsk, Nikolayevsk, Vladivostok, and in the Jewish autonomous region of Birobidzhan. Oil is produced at Khabarovsk, Northern Sakhalin, and distant Petropavlovsk. Associated with the mines are the blast furnaces and coal and oil-burning electric power stations. Non-ferrous metals found in the region include gold, lead, zinc, tin, tungsten, molybdenum, and manganese. The potentialities of the region are made effective almost entirely in the belt of industrial centers from Irkutsk to Nikolayevsk, along the banks of the Amur and tributary rivers.

The change in transport has been made in one stage from dog sled to aircraft. In the barren stretches of the north, a profusion of airfields and air strips, civil and military, have been constructed, particularly in the area east of longitude 140°. The airfields have been connected with the west by the scheduled air services of *Glavmorput*, the Arctic airway. Apart from this, the more accustomed means of travel are now greatly extended where roads and extensions of the Trans-Siberian railway are creeping along the coasts and threading among the forests to connect up industrial areas and strategic points in the Soviet Far East. Principal extensions are the 400-mile line through Khabarovsk-Komsomolsk-Nikolayevsk, and the 1,400-mile Irkutsk-Yakutsk line down the Lena with its 1,200-mile branch at Vitim to Komsomolsk. Another 250 miles of rail extend from there to Soviet Harbor (formerly Imperial Harbor), the only inlet on a thousand miles of coast between Vladivostok and Nikolayevsk.

Perhaps the most spectacular transport undertaking, however, is the regular long sea route from Murmansk to Vladivostok. It is kept open by a permanent fleet of ice-breakers and operated with the assistance of a series of weather stations on the Siberian coast. In this way, units of the

Black Sea fleet (via the Volga), the Baltic fleet, (through the Stalin Canal), and the Northern fleet, can augment the Russian Pacific naval forces without depending on the availability of the Kattegat route and the Suez Canal.

Before 1945, the only ice-free port on the Pacific was Petropavlovsk in southern Kamchatka. Last minute participation in the war against Japan, has, however, been of incalculable value in adding the Kurile Islands, southern Sakhalin, Northern Korea, and the Dairen-Port Arthur base, to Russia's sea outlets. This brings the Soviet Union prominently into the Pacific naval picture.

Defense Measures

The headquarters of the Soviet Far East Command is at Chita on the plateau east of Lake Baikal. Here, the commander is centrally situated with railway communications to his forces, which are located as follows:

1. Komsomolsk, the lower Amur, and on Sakhalin.
2. The Vladivostok-Korea area.
3. Port Arthur-Dairen.
4. The advanced far northeastern forces in the Chutovsk-Kamchatka region, accessible only by air and road.
5. The Lena valley "rear," reached by rail through Irkutsk or by the trans-mountain railway through Vitim-Komsomolsk if the latter is now completed.

The ground forces in this army group are estimated at 44 divisions, disposed in the above areas as follows:

1. 19 divisions (2 on Sakhalin), of which 5 are airborne.
2. and 3. 9 divisions.
4. 5 divisions (3 airborne).
5. 11 divisions (3 Mongolian), including the GHQ Reserve at Chita.

Of the 41 Russian divisions, 8 are airborne. If the proportions of the different arms of the Soviet Army as a whole are

assumed to be preserved, 7 divisions are armored, 14 are infantry (more than half of them mechanized), 5 are cavalry (3 horse, 2 mechanized), 5 are artillery, and 2 are made up of air force ground troops, auxiliaries, antiaircraft, and meteorological staffs.

The frequent supply and relief of the five divisions in the extreme northeast, made necessary by the rigors of the climate, must be the commander's chief administrative difficulty. The immense distance, poor communications by land, and the frozen sea for more than half the year create great difficulties. The construction of an "Arctic Highway," corresponding to that in North America, is necessary to make the northeast corner an effective strategic outpost.

The proportion of armor would be less here, however, owing to the extreme unsuitability of the terrain and the prior requirements of the southern and western fronts. Again, Russia's usual shortage of mechanical transport during the war probably will be remedied here last of all the armies. Therefore, it is safe to assume that the eastern outposts have to depend for supplies to some extent on air, mostly on horse-drawn wheeled and sledged vehicles, and on ships and barges during the weeks when the temperature allows. Movement of troops away from the rail-head must be on foot. Further, such slow infantry cannot keep pace with armor, even in the restricted areas where the latter can cooperate.

Air Strength

Estimates of the air strength in areas 1. 2. and 3., mentioned above, are 2,500 firstline and other planes. In the other areas, the figures are 1,750 and 2,250. The profusion of landing places has already been mentioned. The *World Aviation Manual*, however, remarks that fewer than 50 fields are properly equipped. On the other hand, Russian ability in the main-

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tenance of aircraft was noted during the war. The experience so gained is conspicuous in regard to meteorological services (particularly valuable in this region), de-icing, and engine and weapon maintenance. A noteworthy development suited to the defense of the Russian "Alaska" is the construction of helicopters, less subject to icing than other aircraft and ideal for communication in a region of forests and islands. The north coast meteorological stations already referred to, which are more necessary here than anywhere else in the Union, must be an extension of the 37 complete sets of radio-technical equipment for weather stations supplied by the United States as late as 1945. The report center for all the stations is at Khabarovsk on the Amur.

Russian Fleet

The Russian Far Eastern Fleet, based at Vladivostok, consists of two 8,000-ton cruisers, *Katman* and *Kaganovich*, built during the war at Komsomolsk. Two more cruisers of the same class are under construction there. In addition, a number of *Molnya* class destroyers, with six taken

over from Japan, plus minesweepers and auxiliaries, are also available. Of the Union's 250 submarines in commission, 100 are believed to be in the Pacific.

There is also the Amur flotilla, based at Komsomolsk. The figures can be only provisional, owing to the possibility of increases from or decreases to the northern and Baltic fleets by way of the Arctic passage. However, as submarine construction seems to be the keynote of Russian naval policy, it is likely that the Pacific fleet would be increased rather than decreased in that ocean where the US Navy is master. There is no doubt that the territorial gains in this area will be of immense benefit to the Soviet Fleet. Submarine bases in deep and ice-free water are doubtless being fitted out from the Kommander Islands to Port Arthur.

Conclusion

Russia's defenders in the Far East seem to be a "fending-off" force in the event of attack by sea or air. The minds of the Politburo must be much easier in regard to this area now that the conquest of North China has been accomplished.

Throughout the late war the plans for the launching and subsequent maintenance of every campaign were conditioned to a large extent by the capacity of the transportation facilities that existed, or could be developed. Indeed, it is inconceivable that any commander would embark on an operation without considering transportation and its influence on the military situation.

Brigadier R. F. O'D. Gage, Great Britain

Employment of the Canadian Army Overseas

Reprinted by the MILITARY REVIEW from "The Canadian Army 1939-1945" * by Colonel G. P. Stacey, 1948.

ON 20 August 1941, Prime Minister King of Canada arrived in the United Kingdom to visit the Canadian forces overseas and to have the benefit of consultation with the British government. On 23 August, he attended the Canadian Army Sports at Aldershot and spoke to the men assembled as spectators. During his address, there were some interruptions which received perhaps disproportionate attention in the press; a Canadian newspaper correspondent suggested that they were "symptomatic of a certain impatience to get into action." Mr. King spent 26 August with the 1st Division and spoke four times to the troops. The gist of these addresses was that, while he realized how difficult it was for men who had come overseas to fight the enemy to find the moment of battle constantly postponed, they were in fact performing essential service in Britain. The Prime Minister said on one of these occasions:

"Only a day or two ago, Mr. Churchill told me that he hoped I would realize that the reason the Canadian forces were being retained in these Islands was that he and his colleagues regarded Britain itself as the most important of all parts of the Empire, and that the defense of Britain would be, above all else, the most significant of all the factors that would ultimately determine the outcome of the war.

"Mr. Churchill understands, and I want you all to understand, that so far as the dispositions of the troops are concerned, the Canadian government places no restriction whatever upon any decision that may be made, other than that the government itself shall have the opportunity of knowing what is contemplated and an opportunity of expressing views.

"All of us in Canada realize that, if you are being kept here in the British Isles rather than being sent to some other theater of war, it is because the British government itself regards the United Kingdom as the most important of all centers of liberty in the world. It is the citadel of liberty, and you have been given the honor of defending that citadel."

On 4 September, at a Mansion House luncheon in Mr. King's honor, Mr. Churchill himself spoke of the enforced inactivity of the Canadian troops in these terms: "You have seen your gallant Canadian Corps and other troops who are here. We have felt very much for them that they have not yet had a chance of coming to close quarters with the enemy. It is not their fault; it is not our fault; but there they stand, and there they have stood through the whole of the critical period of the last 15 months at the very point where they would be the first to be hurled into a counterstroke against an invader.

"No greater service can be rendered to this country: No more important military duty can be performed by any troops in all the Allies. It seems to me that, although they may have felt envious that Australian, New Zealand, and South African troops have been in action, the part they have played in bringing about the final result is second to none."

The question of the employment of the Canadian force had indeed become one of burning interest. About its original role there had been no doubt. It was to fight in France with the British Expeditionary Force. When France collapsed, it slipped naturally into the new role of defender of Britain. This was the result of compelling circumstances, not of planning or negotiation. But when the invasion of Britain did not materialize, and the Germans turned

* King's Printer, Ottawa, Canada, Copyright 1948, price \$2.50.

instead against Russia, the future tasks of the increasing Canadian force in England inevitably became a matter for discussion by the public and consideration by statesmen and generals. It was quite clear that an attempt at the invasion of Britain was still a definite possibility, against which solid insurance was required. But it was equally clear that the Russian adventure had materially changed the aspect of the question.

On 30 June 1941, very shortly after that adventure began, Brigadier E. L. M. Burns, General A. G. L. McNaughton's* Brigadier General Staff, discussed the Canadian role with Brigadier A. W. S. Mallaby, a Deputy Director of Military Operations at the War Office. The latter indicated that the War Office understood "that Canadian troops were not available for employment elsewhere than in the United Kingdom." Brigadier Burns hastened to explain that the Canadian government had never taken any such stand; on the contrary, it would consider any proposals from the British government for the commitment of its troops in another theater. In such a case, he said, General McNaughton's advice would presumably be given great weight; and the General, while considering that it was not the business of the Canadian Army Overseas to initiate suggestions for its own employment, was always ready to advise his government in favor of employing its forces at any point where the need for their services could be demonstrated by the British Chiefs of Staff Committee. Brigadier Burns added:

"Lieutenant General McNaughton, however, had always considered it a principle that the bulk of the Canadian military forces should be employed in one theater, so that Canadian authority over our troops could be properly maintained, and would not favor any course of action that would involve splitting the Canadian Army Overseas into several packets."

* Canadian Corps Commander.

The possibility of using the Canadians in the Middle East was mentioned. Burns suggested that, in view of the ease with which troops could be moved from Canada via Vancouver and Singapore to Suez, if any such project were contemplated a decision should be made before the 3d Canadian Division and the Armored Division were brought to the United Kingdom. The same day, Mallaby wrote Burns telling him that he had subsequently discussed this question with the Director of Military Operations and Plans. The latter was interested in Burns' views on the possibility of employing Canadian troops in the Middle East. "He said, however, as I rather expected," wrote Mallaby, "that it would be premature to raise the issue now because our requirements for home defense against the possibility of an invasion in the autumn preclude our sending further considerable forces overseas, and because, in any case, we could not transport such forces in the near future."

The Canadian Corps remained in the United Kingdom, and the build-up of the force there went steadily on. General McNaughton's own view, expressed to the Minister of National Defence during the latter's visit to the United Kingdom later in 1941, was that the best employment for the Canadian Corps during the winter was in Britain. In the spring, he thought, it might be practicable to participate in operations elsewhere "as a Corps."

While in North America early in 1942, General McNaughton visited Washington. On 9 March, he visited President Roosevelt in company with the Canadian Ambassador and described to him the task of the Canadian force in Britain as he saw it. McNaughton's notes of the conversation indicate that he explained that the purpose of the force was twofold:

"First, that in the present period it was desired to contribute as well as we could to the security of the United Kingdom, which we considered to be under-insured,

and to the maintenance of our foothold for an eventual attack on the Continent of Europe; secondly, that we never lost sight of the fact that we were part of an important strategical reserve, which sooner or later there would be an opportunity to employ against Hitler, and even in the meanwhile its very presence in England would continue to tie down German divisions perhaps of greater total strength."

The following day, General McNaughton had an interview with the Acting Chief of the War Plans Division of the War Department, Brigadier General Dwight D. Eisenhower, who told him that "he had racked his mind to discover how we could present Germany with a second front, and that the more he thought it out the more firmly had he been driven to the conclusion that it would be possible to do so only by attacking Western Europe from the British Isles." With this, McNaughton expressed the fullest agreement. His views as put to Eisenhower were thus recorded by Major General M. A. Pope, who was present:

"There could be no question but that the war could only be ended by the defeat of Hitler and the only way of doing so was to attack him from the west. He had never lost sight of this object and while he had had constantly to think in terms of the defense of the United Kingdom, he had always been convinced that an offensive

would sooner or later have to be launched from the United Kingdom across the narrow seas. This view he had represented to the Canadian government the previous week and he was glad to be able to say that it had been accepted."

President Roosevelt had questioned his Canadian visitor concerning the problem of morale among the troops in Britain during their long period of static employment. General McNaughton's reply was as follows:

"... I told him that I had no particular anxiety on this score at the moment nor would I have for some months to come. I told him that this was because the force was rapidly growing, there were ample outlets for promotion, that we had been working the men very hard, that we were constantly changing the scene of our activities, that we had paid attention to education, and most importantly that I thought our soldiers were a highly intelligent body of men, who recognized that they were only there for the purpose of making a definite contribution to the defeat of the Axis. They were just as well aware as I was of the wisdom of deferring action until a proper opportunity developed for their use, because what we wished to do was not to fight for the sake of fighting, but to bring the maximum possible continuing effect against the enemy."

Morale is the intangible spirit of any body of men or women. Like courage, it's a state of mind, a mixture of emotion and reason. High morale means that every individual in a group will work—or fight—and, if needed, will give his last ounce of effort in its service. For a man to feel and act like that, his morale must have certain foundations. These foundations are, I think, first, spiritual, then mental, and lastly material. I put them in that order because that, I believe, is the order of their importance.

General Sir William Slim, Great Britain

The First Week in the Battle of France

Translated and digested by the **MILITARY REVIEW** from an article by General G. Roton in "Informations Militaires" (France) August 1948.

CERTAIN military critics, steeped in the lessons of World War I, have compared the slow-paced operations in the battle of the Marne with the first phase of the Battle of France in May 1940. But no comparison is possible.

In 1914, the French Army and the German Army were of equal strength. As they faced each other, each had an unprotected flank. Both were able to make an outflanking maneuver. As we well know, the German maneuvers failed because von Kluck disobeyed the orders of German high command. The attack organized by Joffre on the right flank of the German Army was aided by the initiative of Maunoury. In May 1940, the battle was fought over a continuous front which extended to the sea. A decision was possible only by making a powerful frontal thrust. Only the Germans, who had created a mechanized force capable of breaking through a front, were able to do this. Their breakthroughs were followed by deep, lightning-like exploitations.

A brief study of the operations during the first week of the battle will reveal the difficulties encountered by the Allied high command. To oppose the German armor, the Allies had only a limited number of large so-called "mobile" units. These were not self-contained and frequently had to rely on the railroads for transportation. Constantly bested in time and space, the Allied high command was almost powerless to plan ahead.

Allied Troop Dispositions

Let us examine the situation of the Allied strategic reserves on 10 May. Out of some 20 large units available for the maneuver, only 3 were mobile divisions. These were 2 armored divisions and a motorized division.

This reserve was stationed in the Cham-

pagne camp area near Sedan and the Gembloux Pass into Belgium. The other mobile forces of the French Army were in the northern group of armies facing the Germans in Belgium and Holland. These forces included 6 out of the 7 existing motorized divisions, 3 light mechanized divisions, 1 of the 3 armored divisions, and all the light cavalry divisions. Altogether, the reserves of the northeast command represented about a fourth of the French field forces. This was a very small proportion, considering the defense that would be required and the lack of knowledge on the direction of the German main effort. These strategic reserves were, moreover, subject to considerable restrictions. One group of three divisions, stationed in the Haute-Marne and Saone areas initially for use by the commander in chief of the ground forces, also was intended as a reserve for service in the Alps if needed. Another group of 5 divisions was located in Haute Alsace. This group was to counter a possible German and Italian attack through Switzerland. The strong German reserves, in addition to the regular units, made it possible for them to attack in the Saar, at the weak point of the French fortified position. This eventuality was foreseen by the French intelligence service, which had information on the heavy howitzers, aerial torpedoes, and tanks which the Germans were constructing. But it was not proper for the command to make all these assumptions before the battle began. Preceding a battle, the command must free itself of all preconceived ideas about the enemy and resist assigning him an intention which may never materialize. The command must be prepared for eventualities and dismiss them one by one as the situation is clarified.

At first, the strategy in 1940 developed according to Allied plans. The intention was to maintain a defensive position at the frontiers and to fight in the area supported by the Rhine and the Maginot Line. It was planned that only the left of the Allied Forces would be moved forward to the middle sector of the Scheldt in the Ghent-Antwerp fortified area. Here the Belgian Army proposed to make a final stand against the Germans. In the face of the strong enemy units adapted to *Blitz* warfare, it was reasonable to adopt this attitude of strategic waiting. It was also expected that the French Army would play the role of an advance guard for an indefinite period.

The French plan of operation encountered many difficulties before reaching its final form. On 15 November 1939, instructions received from the high command marked a decisive step in the evolution of the plan.

The idea of active defense was abandoned, and the fighting was now planned in Belgium on the Antwerp-Namur line. The organization of this line had just begun. At the conclusion of the maneuver, the Seventh Army under General Giraud was to be in GHQ reserve on the left of the Belgians. Employment of this army was to be limited to the Scheldt at Antwerp and to Zealand. This fundamental decision of the high command was ratified in the meeting of the Supreme Council on 17 November in London.

During the winter, General Georges, commander in chief on the northeast front, attempted several times to obtain permission from GHQ to revise the missions of the northern armies and to strengthen the general reserves. It would have been highly desirable to extend the British Army sector to the north. It had become too narrow. General Giraud's Army and its large units should have been restored to the general reserve. The instructions from the high command dated 12 November did not contain this suggestion but gave final

form to the plan of operations. This plan provided for a drive by the Seventh Army in the direction of Breda, Holland.

The absence of the Seventh Army and other units was seriously felt when the *Panzer* forces drove toward Calais.

The Attack

The Germans attacked on 10 May 1940. By then, the front from Sedan to Namur had received substantial reinforcements of tanks, antitank units, and artillery. The Huntziger army had immediate reserves composed of a group of 2 battalions of tanks, 2 light cavalry divisions, and the 71st Division and the 1st Colonial Division. The Corap army had been reinforced with 2 battalions of modern tanks; the 53d Division was stationed back of its right.

Before the battle began on 10 May, an ominous event occurred on the Belgian front. The Germans seized three bridges intact over the Albert Canal in the area southwest of Maastricht. The next day, the Belgian position was broken through on an army corps front. All day, large columns were crossing the Meuse and the Albert Canal. On order of General Georges, the crossings were subjected several times to shelling by all the French and British artillery available. This action continued during the night. The situation at the end of the day revealed clearly that the Germans were making a serious effort in the direction of the Gembloux Gap. East of the Meuse, in the Ardennes, French cavalry was still on the Ourthe; beyond the Semoy, there was fighting with German armored advance guards.

The Air Force was ordered to attack the German march routes, with priority to the Maastricht-Gembloux area. The cavalry corps operating in this zone was to counterattack the heads of the German columns.

On 11 May, it was decided to push six large units of reserves toward the rear of the Huntziger and Corap armies, which were engaged in the rapidly developing battle on the Meuse. These reserves in-

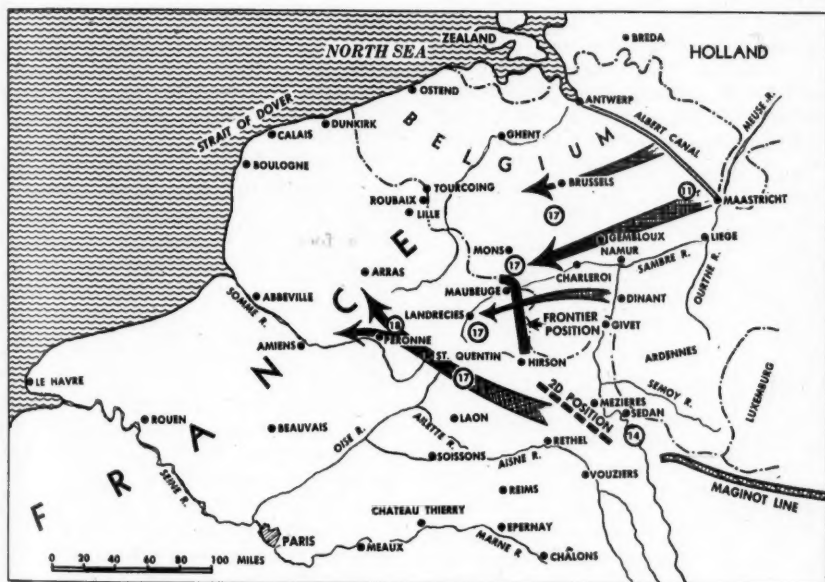
cluded three mobile units: the 2d and 3d Armored Divisions and the 3d Motorized Division. Transportation was held ready to move the reserves until 13 May.

On 12 May, at Casteau near Mons, a conference was held during which the command of the Allied Forces in Belgium was organized. Only preliminary study had been given this matter previously.

General Georges had been given the authority to decide, together with General

Allied armies in the north was becoming urgent. General Georges believed that General Billotte, who had prepared the plan, should be in charge of the approaching battle. On the initiative of General Georges, with the full accord of the Allied high commands, the delicate problem of a single command was accordingly solved at Casteau on 12 May.

May 12 was marked by acceleration of the German drive over the whole zone



Gort, all matters relative to the mission of the British Army in Belgium. But the commander in chief had reserved to himself the task of giving personal directives to the Belgian Army. The Giraud army, which was to operate on the left front, was placed under the direct authority of General Georges and thus could not be used by General Billotte, commander of the northern group of armies. Unity of command to insure the close coordination of the

from Sedan to the sea. Contact was made with Allied holding forces, principally in the Breda area and in front of Gembloux. South of the Meuse, French light cavalry divisions were attacked by powerful armored forces supported by light bombers. The French were forced to retreat to defensive positions. British planes reacted vigorously throughout the afternoon and attacked large concentrations of tanks in the Ardennes. During the day, the move-

ment of Allied forces into position was continued, and the forward movement of the reserves appeared to be proceeding well. In the north, the tanks of the 1st Armored Division de-trained in the Charleroi area. The motor column, however, was delayed on roads that were clogged by civilians and Belgian soldiers.

In the Sedan area, where the German attack was imminent, the 3d Armored and the 3d Motorized Divisions had begun to move toward new positions.

On 13 May, German armored advanced guards reached the Meuse north of Dinant and at Sedan. They crossed the river at these points and organized small bridgeheads on the left bank. These were boldly exploited and widened the following day.

In the Dinant sector, the local command attempted to regain the upper hand. An armored counterattack, belatedly executed toward the end of the day, succeeded in forcing the German detachment on the left bank back to the Meuse. The infantry did not follow the tanks or occupy the terrain, and the success was not exploited.

At Sedan, the expected battle began on the left of the Huntziger army. In the morning, Guderian's tanks emerged from the Ardennes forest and established contact with the French position west of Sedan. Beginning at 1100, the entire defensive position was subjected to 4 hours of heavy fire from artillery and aviation. The French artillery, which was very powerful in this sector, reacted vigorously while the attack forces were being assembled. At 1500, the attack started. After establishing a foothold on the south side of the river, the Germans filtered through the advanced French resistance groups. They did not breach the main line. It was not till late in the afternoon that they reached the final protective line in the Marfee Woods. At that point, a small detachment of German tanks appeared, creating panic among the French forces and in a few command posts. This local

failure seriously affected the counter-attack which had been planned by the command for the following day.

During the day, General Georges took the necessary measures to ward off the double menace resulting from the German movement in force south of Sedan and the extension of the Dinant pocket. On 14 May, he gave orders to counterattack to throw the Germans back across the Meuse. For the counterattack in the Dinant sector, General Billotte counted on the 1st Armored Division and the 4th North African Division. The 1st Armored Division regrouped at Charleroi early in the afternoon of 14 May, and the 4th North African Division reached the field of battle by forced marches.

On 14 May, the situation became very disquieting on the front from Namur to Sedan. Early in the morning, the Germans crossed the Meuse, gained a foothold on the left bank, and mounted strong armored attacks. The Allied front lines were overrun everywhere. German planes made massed bombing attacks on command posts, centers of resistance, and artillery positions, and created confusion on the roads which were jammed with civilians. Destruction of communications made command impossible. By the end of the day, the Germans had won a bridgehead 30 miles wide and 9 miles deep. General Corap had arrived to organize the counter-attack, which was to be executed by the 1st Armored and the 4th North African Divisions. However, the many difficulties of the situation made it impossible to develop a coordinated attack that day.

The 1st Armored Division, delayed in its movement as a result of the jammed roads, reached the area some 9 miles from Dinant during the night. Its supply of gasoline was nearly gone. General Bruneau intended to attack at dawn but his fuel convoy did not arrive. At dawn on 15 May, he lost the initiative when a mass of German tanks emerged from the city of

Dinant. The 4th North African Division, which arrived late on the field of battle in a state of extreme fatigue, was also unable to launch a counterattack during the day.

The Initial Breakthrough

In the Sedan sector, the situation grew worse during the night of 13-14 May. The three divisions of Guderian's Armored Corps crossed the Meuse on three ponton bridges. At 0700, they began their attack on the Allied positions. During the morning, the Allied defense was breached and the troops fell back toward the south. At the same time, the Germans widened their pocket toward the northwest. The Germans by-passed resistance at Mezieres on the south and collided with the 53d Division which General Corap had thrown into the battle on 14 May as cover for his right flank. The counterattack, for which powerful forces were available and on which the command had placed great hopes, was not executed. At 0400, the commanding general of the 3d Armored Division received orders to attack at 1100. But the movement of the tanks to the assembly position could not begin until around midnight, after the battalions had been supplied with gasoline. The movement was effected over routes cut by deep craters and jammed with infantry forces moving back toward the south. The armored division was not in place until about 1630.

In the meantime, the situation had become considerably worse on the front, which by now was completely broken. In this atmosphere of defeat, General Flavigny believed it better to abandon the idea of a counterattack. He ordered the 3d Armored Division to fend off the enemy to the best of their ability and to employ their tanks as barricades in all the corridors being used by the Germans. Since it was spread out over a broad front, this unit found itself unable to carry out the orders of the high command to resume the attack on the following day.

General Huntziger's final report for the day contained a discreet allusion to the employment which had been made of the 3d Division. It revealed the fact, however, that the shock power of this unit had not been utilized. In reply, General Georges made a new appeal: "Tomorrow we must energetically continue the action begun today. We must vigorously push toward the Meuse as far as possible and hold the terrain won by the tanks with our infantry. Only by such means shall we be able to gain the upper hand of the enemy and block his progress westward and southward."

On the evening of 14 May, the situation on the Meuse front was obviously critical. With the exception of the wooded Ardennes sector, where local German attacks had failed, the French hold over the entire length of the river had been broken. Close cooperation between air force bombers and armored forces was the basis of the German successes at Dinant and Sedan. The new doctrine of employing these forces was a clean break with previous methods. In World War I, attacks were preceded by prolonged artillery preparations which rendered surprise impossible and gave the defender time to bring up his reserves. In May 1940, the brief bombing attacks permitted a breakthrough within 24 hours.

General Georges continued to place his reserves to parry the threat which he expected would result from the German advance between the Corap and Huntziger armies. He indicated the positions back of the threatened front which he hoped his divisions would be able to reach in time to restore the situation. The barrier which he was attempting to organize coincided with the second position west of the Meuse. It was planned to connect it with the organized position on the northern frontier, where the forces engaged in the battle of Dinant were expected to halt in their withdrawal. General Bouchon was in charge of coordinating the reinforcements being

sent into the junction between the Huntziger and Corap armies. The 14th and 2d Divisions were placed at his disposal for this purpose. The supply line of the 2d Division, originally running toward the left of the Corap army, was changed toward General Fouchon's sector on 14 May.

Lack of Coordination Costly

On 15 May, alarming reports reached the command from the entire front. In the Dinant sector, General Corap had ordered his troops to fall back during the night. According to him, his troops had lost most of their combat effectiveness. The 1st Armored Division, which had spent the night in its assembly position in contact with the enemy, was subjected to strong armored attacks throughout the morning. A violent 5-hour tank battle took place. After passing the immobilized mass of French tanks, the *Panzerdivisionen* continued to advance at top speed toward the west. They encountered fresh forces of the 4th North African Division which had entered the line the day before. Only these forces were able to offer effective resistance. This division held for a part of the day but was finally drawn into the general retreat of the adjoining divisions.

General Giraud arrived at Vervins at this time to replace General Corap. During the night, Giraud contacted the commanders of all large units in the front-line. After a thorough examination of the situation, he estimated that it was impossible to establish his army any place except on the Franco-Belgian frontier position. He gave orders accordingly. In order to be ready for any eventuality, he also began organizing an antitank barrier at the Oise. It so happened that the 2d Armored Division was forced to halt as a result of damage to the railroads by aerial bombing. On 15 May, with its units strung out between Saint-Quentin and Hirson, the Division detained in the open country. A group of tanks, about 2 battalions, was

immediately ordered to guard the bridge of the Oise. To complete the blocking of the Oise, General Giraud counted on the early arrival of two large units which had been recalled from Belgium: the 9th Motorized and the 1st Light Mechanized Divisions. Under these critical circumstances, he regretted bitterly that he was not able to use the powerful reserve of the army which he had previously commanded. Against Giraud's wishes, it had been sent to Holland.

The reports from the Sedan sector on 15 May further disillusioned General Georges. On the evening of 14 May, he had issued the order for a counterattack the following day toward Sedan, using the 3d Armored Division and the 3d Motorized Division. "Its execution," he said, "is rendered urgent by the situation of the adjoining army on the left."

In spite of repeated intervention by the high command, this operation had not taken place. Although scattered, the 3d Armored Division had succeeded in regrouping at its assembly position. However, General Flavigny had countermanded the order for the counterattack at the last moment.

Thus, a chance to restore the situation at Sedan was definitely lost. We realize today that a determined attack would perhaps have changed the course of events. General Guderian declared that the German plan of operations governing the employment of the *Panzerdivisionen* was very cautious. They were to reach the Meuse and the Albert Canal ahead of the French, establish bridgeheads there, and then mark time until the main bodies of the German forces arrived. Hitler is said to have anticipated a delay of 6 weeks at that point. On 14 May, at about 1400, General Guderian decided to push on west with two armored divisions. On 15 May, General von Kleist, commander of the armored groupment and Guderian's superior, reminded Guderian of Hitler's formal

Above
1940.
May
German



Above, German troops advancing through woods near Zweibrücken, Germany, on 13 May 1940. Below, left, an English antitank gun captured by the Germans on the Saar Front, 17 May 1940. Below, right, German troops passing through a French village which the Germans claimed the French had blown up and set on fire, 17 May 1940.—US Army photos.



order to limit the action to maintaining a bridgehead southwest of Sedan. At General Guderian's insistence, von Kleist on 16 May finally authorized the movement westward.

The speed of the German tank attack west of the Meuse on 15 May and the interference of German aviation in the Allied concentration prevented General Touchon from establishing a barrier at the second position. The only forces at his disposal were elements of the 14th Division and the remnants of the Corap army in the zone. He was forced to establish his army on the Aisne and the Ailette, in conjunction with the Oise barrier which General Giraud was organizing.

Establishing New Defense Lines

To gain time for bringing up reserves to this new position, General Georges intended to slow the advance of the German tanks by opposing them with all the mechanized units available. However, it was impossible to assemble them. The coordinated counterattack which Georges ordered was to be executed on 17 May. The 1st Armored Division, whose exact situation was unknown, and the 2d Armored Division were to attack from the north from the upper Oise; the recently created 4th Armored Division was to counterattack northward from the Aisne barrier. The northern counterattack was to be commanded by General Giraud and the southern by General Touchon.

The reasons why this operation was not entirely executed are well known. The 1st Armored Division was still disorganized as a result of the action on 15 May west of Dinant, and the elements of the 2d Armored Division were still widely dispersed. Only the 4th Armored Division, setting out from the Laon area, executed a successful attack toward the north on 17 May against the flank of the *Panzerdivisionen* then moving westward. General Guderian later declared that French tanks

penetrated as far as his command post that day. He added that their intervention had no influence on the forward movement of his divisions. However, at noon on 17 May, the French listening service had intercepted an SOS in plain language, stressing the disturbance the counterattack had produced in the German units. This was the message: "French armored division attacks from Laon and Montcornat. Urgent to counterattack."

During the evening of 16 May, it appeared that the French forces would be disposed as planned. On the Aisne, the Touchon army had not been attacked. It was digging in and had established contact with the Huntziger army at the second position south of Sedan.

In the north, in conjunction with the Allied armies, General Giraud had established an orderly disposition on the Franco-Belgian frontier. The left was firmly supported by the fortified sector of Maubeuge. A fresh unit, the 1st North African Division, had arrived to reinforce the defense. Other units, coming back from Belgium, were hastening to the battle. The advance guard of the 9th Motorized Division arrived at the Oise; the 4th Division began unloading in the afternoon; the 1st Light Mechanized Division was expected the following day.

During the afternoon of 16 May, the Germans established contact with the frontier position and attacked at several places with heavy tanks and armored self-propelled guns. A few bunkers were lost, but the situation was reestablished by counterattacks. Only a small detachment of tanks succeeded in filtering into the French lines. These tanks pushed at top speed toward the Oise, causing some confusion along the way. They reached the bridge at Landrecies on the morning of 17 May.

Indeed, a fairly reassuring impression had prevailed at the end of 16 May. The Germans had been contained, and the

French frontier position had not been seriously disturbed. But this impression was short-lived. During the night, the plans of the command were again upset. A corps commander, for reasons which are still not well understood, ordered his troops to fall back. This order, the execution of which had been begun, jeopardized the situation at the moment when there was some hope that it could be stabilized. This unexpected incident upset General Giraud's plans. Giraud was forced to consider the establishment of his army on the Sambre and the Oise.

General Billotte approved this decision. This new situation presented additional problems to General Georges. He did not think that the Oise barrier, which was still precarious, could hold long in the face of an imminent attack. The arrival of the German armored advance guards at the Oise on the evening of 16 May brought a very grave threat to the rear of the Allied forces engaged in hard fighting in Belgium. Desiring to free these forces as quickly as possible from continuous German pressure, he ordered them to withdraw to the southwest. On conclusion of the withdrawal, the right of the northern group of armies was to take position on the upper Scheldt.

Moreover, additional breakthroughs had to be anticipated. If a solid antitank barrier were not established in time on the Oise-Sambre, a new breach in the French front might be expected. A breakthrough in the Saint-Quentin region would open the route to Calais and Paris at the same time. To ward off such a threat, General Georges decided to reinforce hastily the precarious contact between the Touchon and Giraud armies. The Seventh Army, which had been drawn back from Belgium, was to be placed in the threatened sector. General Frere was to assume command. The forces assigned to this army would be 3 army corps and 11 divisions, which would be brought up by transportation

which was either on the way or to be ordered. All possible means of transportation were being utilized at that time. Three transversal railway lines and all the transversal highways were being employed to the maximum, without interruption.

On the evening of 17 May, the outlook was extremely dark. Contact had not been established between the Touchon and Giraud armies near the junction of the Ailette and the Oise. The first 2 divisions sent to General Frere did not arrive in the army concentration zone until 18 May. Reinforcements had been considerably delayed by aerial bombing. On the Oise front, six *Panzerdivisionen* had made contact and were attempting to cross. A small bridgehead had been formed at Landrecies, which had been occupied by an advanced German detachment on the morning of 17 May.

During the night of 17-18 May, the Germans continued to infiltrate to the west bank of the Oise.

Final Decisive Battle

On the morning of 18 May, the German efforts were intensified over the entire front of Giraud's army. A violent battle, which was to decide the fate of the French northern forces, was beginning to develop. Up until noon, French troops offered stiff resistance. General Giraud, still optimistic of the outcome, awaited the committing of the 1st Light Mechanized Division. At 0700, it had received the order to counterattack the German forces in the Landrecies pocket. The division began its attack about 1630—too late, and under adverse conditions. It finally abandoned the attack of the German defense, which had been considerably reinforced during the night.

The reports which arrived at the end of the day revealed how grave the situation was. On the left, the Germans had forced the Maubeuge defenses. In the center, in the Landrecies sector, Allied troops had been overrun by tanks. On the right, the

Oise crossings, which were weakly held by isolated tanks, had been lost. A column had passed through Saint-Quentin like a whirlwind and had pushed a point as far as Peronne. During the night, it was learned that three motorized columns were converging on Amiens. The disruption of the front had been accomplished. After 19 May, 7 German armored divisions entered the wide breach between Maubeuge and Saint-Quentin and rushed on toward the coast. The northern Allied armies, threatened with encirclement, were about to begin their final struggle. The epilogue of the first drama of the war was to occur at Dunkirk.

Conclusion

The object of this historical sketch has been to show the complex problem that faced the French forces. The enemy greatly outnumbered the Allies and possessed powerful forces for their breakthroughs and exploitation. The German offensive of May 1940 was a wide penetration on the Meuse between Dinant and Sedan. It was accomplished in 2 days. Without a halt, the penetration was followed by an uninterrupted race to the sea. The lightning-like advance of the Germans, and the extremely unstable situation which resulted from it, considerably hampered the actions of the Allied command. It was impossible

to make any long-range plans. Frequently, concentrations of units collapsed before they could be employed. In World War I, as long as the opposing forces were equal, tanks only created bulges and pockets of slight depth. The defender blocked the attacks after they had penetrated short distances.

In May 1940, however, the Meuse was forced on a wide front of 60 miles, and a powerful, broad, and deep exploitation followed. The Allied command was finally forced to establish its forces at an obstacle far in the rear of the initial front. The position selected was the Aisne, the Oise, and the Franco-Belgian frontier. The attempt to establish this position nearly succeeded.

In modern war, the speed of exploitation forces the defender to increase the depth of his positions. In 1944, the German Army was not able to reestablish itself, after the defeat in France, until it had fallen back to the Siegfried Line and the Rhine. In a war fought with armored forces, the defense cannot succeed unless it has strong, mobile reserves and terrain in depth. The Russians possessed these defensive requirements in World War II.

It is in the light of these lessons that we should judge the actions of the Allied command during the campaign in France.

In modern war, every national force must be stirred to life and mobilized. Total mobilization is impossible, therefore, without a transformation of all activities with a view to war. This presupposes adequate organization of governmental machinery.

General de Lattre de Tassigny, France

Military Writing

Digested by the **MILITARY REVIEW** from an article by Lieutenant Colonel M. C. A. Henniker in "The Army Quarterly" (Great Britain) January 1949.

THIS paper tells us how to write about military subjects. It is essential, particularly in peacetime, for officers to know how to wield the pen. You will often have to use your pen, but if you cannot use it properly you are just a scribbler wasting time. Military writings are subject to rules. Here are some of them.

First, you cannot write anything unless you have knowledge. Writing betrays a man's brain. If his brain is empty, no felicity with words will fill the void. You must therefore read up on your subject and collect your thoughts before you begin. You may have to search letters in a file, or turn up books of reference. You may have to rummage in the storehouse of your brain. This is where the real work lies. It is for this that editors pay good money, examiners give good marks, and senior officers give good reports. Each writer has his own method. For quick and tidy work it is a help to record, as notes, the results of your research. Get all the facts into one place. Then you can clear your desk of files and references and turn to the matter of writing. Writing is a mechanical business. It is an art to do it beautifully, but competence can be achieved by obeying rules.

You must begin with a heading. This has two functions. It directs the reader's mind in the way you want, and it focuses your own on what is relevant. Write a heading across the top of the paper. Do not just write "Question 6." In the Book of Common Prayer there are ten rules for the conduct of life. There could be no better heading than "The Ten Commandments." Let your heading be like this. It describes the nature of the work in the fewest possible words.

Then write your first paragraph. "Tell the news in the first sentence" is a rule of

journalism. It is a sound rule for all writing. Look at the Book of Genesis. The first sentence runs thus: "In the beginning, God created the heaven and the earth." Now you know what the first chapter is about.

The remaining sentences of the first paragraph expand or explain the first. The shorter you can keep the first paragraph the better, for it does not directly contribute to the subject. It merely prepares the ground. It is like levelling the site before you start to build. You cannot avoid it, so do it quickly. Then get to work on the main business.

It is often convenient to link the first paragraph to the rest with a short paragraph of one or two lines. Sentences that form this link are such as these:

The facts are as follows:

The history of this dispute is given below:

The two sides to this question are:

Having forged this link, you write down the facts, history, or sides of the question. This may well be called the discussion. In writing the discussion, also, there are certain rules. You must stick to the point. Irrelevant facts, unwanted dates, or side issues must be ignored.

Record the facts in order of time. You may be tempted to record them geographically. You may think it easier to describe what Napoleon was doing before Waterloo, and then to say what Wellington was doing. This may be easy to write; it is seldom easy to follow. It is better to say what both were doing on the first day, then the second. This leads to a good climax—as, indeed, the events did.

When there are two or more sides to a question, there are usually arguments for and against each side. Then, there are two ways of discussing them. You may first

record all the various sides of the question. (You may perhaps tabulate them a, b, c, etc.) Then you give all the arguments which affect them. The advantage of this system is that the reader can see the sides of the question at a glance. If these sides of the question are novel, this is a good way. The reader approaches the problem with his mind on the wave length you want. There is one drawback to this way. If you want to refer back to your sides of the question, as you usually have to, you must include such idioms as see (a) above and this deflects the reader's mind.

The other method is to record, after stating one side of the question, all the reasons that make you favor or reject it. (It is the system I am using now.) The advantage of this system is that you can give, at the end of your discussion on each side of the question, your opinion of its value. There is a drawback here, too. If the sides of the question are obscure, the reader will not see what you are driving at until he has nearly finished reading the discussion.

Having stated the sides of the question and discussed each, it only remains to finish your writing with some conclusion. Your last paragraph should be the complement of your first. If you follow this rule, you will avoid two errors. You will not put new matter into your last paragraph. If there is a new fact, it is because the discussion is not finished, and you are not ready for a conclusion. You will also avoid leaving the reader in doubt as to your intention. If you want him to do something, or decide something, or learn something, he will see what you want of him. He will not say, "Well, what do I do now?" It will be perfectly clear what is required of him.

So much for the structure: the first paragraph, the discussion, and the last paragraph. There are a few rules for your style or manner of presentation. The quality of your English is important. How-

ever, an illiterate peasant, if he speaks with sincerity, will make his point, even though there are faults in his grammar. An accomplished speaker with soft accents will sometimes fill his hearer with such rage that he is shown the door. The art is to combine the sincerity of the peasant with the polish of the accomplished speaker. To do this, you must use short words, short sentences, and as few adjectives as possible. Short words are usually from the Anglo-Saxon, long ones from the Latin. Do not say "post-prandial conversations of a bibulous nature"; say "drunken talk after dinner."

It is easier to make your sense clear in short sentences than in long ones. Short sentences add directness to your style, like a straight left in boxing. Accomplished writers, however, occasionally use a long sentence to relieve the somewhat telegraphic effect of a series of short ones. But there is a danger of long sentences becoming complicated; and they often lead to mistakes in punctuation. So avoid them until you are sure of yourself.

When you have finished writing, go through your work and cut out all unnecessary words and sentences. You will find that many long sentences become short ones and are much improved thereby.

In some places, it is customary to avoid the first person. When in Rome, do as the Romans do. But, before doing as the Romans do, make sure you are in Rome. Avoiding the first person must not lead you to making the sentences complicated and the sense "wooly." For instance: "I advise you to pay promptly" is a good sentence. It is short and the meaning is clear. It would be appropriate in most places. If the first person is taboo in your situation, you must write: "It is recommended that you pay promptly." This is still a good sentence within the limitations imposed by avoiding the first person. The temptation into which many officers

fall is to say: "It is recommended that payment should be made with the utmost expedition." This is a "wooly" sentence. Avoid its use.

Some catch-phrases lead you to long sentences. *In the case of* is one. "In the case of officers, their pay will be halved" is a long way of saying: "Officers' pay will be halved." Whenever you see *in the case of* in official writing (and it is common), consider how much simpler the sentence might be if the phrase were omitted. *In view of the fact that* is another phrase that leads to long sentences. "In view of the fact that we are an island race, we

must have a good navy" is simplified by saying: "We are an island race, so we must have a good navy." The simplification comes at once when you cut out the offending phrase. *As follows*, on the other hand, saves words. Macaulay uses the phrase, and he is a prince of words. These last, however, are refinements. They make the difference between a competent work and a work of art. The two essentials are: to found your writing on sound thinking and to write your paper along the lines I have given.

Such are the rules for military writing. Follow them and your pen will be mighty.

Britain's Territorial Army

Digested by the MILITARY REVIEW from an article by Major General G. W. E. J. Erskine in the "Journal of the Royal United Service Institution" (Great Britain) November 1948.

GREAT Britain has learned from bitter experience that when war comes it is then too late to commence the training and equipment of land forces. Such forces as the government decides are necessary must be ready, organized, and trained to take the field. The great speed with which the opening phases of a war can be developed by an aggressor makes a high degree of readiness on our part an essential condition.

The General Staff has advised that the forces we require for war should be based on the Territorial Army. This means that the Territorial Army Order of Battle will have to be deployed at once in case of an emergency. It follows that this Army must be supplied, and kept supplied, with trained men. Its equipment must be the best we can provide. It must be capable of being brought to a full state of mobilization very rapidly. It must be a balanced army containing the right proportion of all arms and administrative services.

This requirement implies a change from the purely voluntary status of the Territorial Army to the acceptance of an an-

nual intake of National Service men who have been thoroughly trained before they join the Territorial Army.

The role of the Regular Army has now become:

1. The provision of overseas garrisons together with small mobile Regular reserves to meet peacetime emergencies.
2. The training of the National Service man during his 12 months continuous service.
3. Regular assistance to the Territorial Army.

The task of assisting the Territorial Army (TA) includes the provision of individual Regular officers and men in the establishment of TA units. It includes the command and staff arrangements on a Regular basis above the unit level. It is also the intention to provide for some Regular units in the TA Order of Battle when the commitments of the Regular Army make this possible.

Order of Battle

The Territorial Army Order of Battle has been drawn up to provide the balance

of arms and administrative services required by the General Staff.

The Order of Battle includes 6 infantry divisions, 2 armored divisions, 1 airborne division, a number of independent infantry and armored brigades, and antiaircraft groups for the Antiaircraft Artillery Command. In addition, there is a substantial backing of army group units such as Royal Artillery, Royal Engineers, Signal, and Ordnance.

These units actually exist. Recruiting opened for them in 1947 on a voluntary basis. We have appealed, and are still appealing, to experienced ex-service officers and men to join. These volunteers are the foundation on which we must build this Territorial Army. The measure of success in this phase is the strength and quality of these voluntarily recruited cadres. It is from these cadres that we expect to get the command and leadership element of each unit. With these cadres in existence, we can go ahead and build on firm foundations.

We have made our target for the cadre 25 percent. This is perhaps generous, because many people have had to form units on a much smaller cadre than that. But the important requirement is the quality. Experienced officers and NCO's imbued with the right spirit, even in quite small numbers, will not find the task of creating units from trained men too difficult.

The National Service Act of 1947 does not bear fruit so far as the Territorial Army is concerned until 1950. During 1949, the first intake under this Act reach the Regular Army and do their 12 months continuous training. It is, therefore, not until 1950 that they reach the Territorial Army. By then, the cadres should be well formed and ready to receive these men. It is a fairly slow process, and, from 1950, it will take us about 5 years to fill our establishment. This does not, however, mean that we have no Army during those 5 years. So long as we have the cadres

which we are recruiting now, we can always fill up the units in an emergency from trained men who have left the colors under the 1939 Act.

There are over 3 million trained men in the country at present. If an emergency arose, the problem is one of organizing the return of these men to the colors, smoothly and without dislocation of industry.

We must get accustomed to the fact that we will not find the Army which is going to war stationed at Aldershot, Tidworth, Colchester, and the other well known military stations. Most of these barracks will be occupied by training establishments training the National Service man. The Territorial Army which is to be ready to take the field will be dispersed all over the country.

A Typical Unit

Let us look at this Territorial Army as it will be in a few years time and see what we expect to find in a typical unit.

The unit should be strong in officers. Most of them will be Territorial officers with war experience. There will be a Regular adjutant and a Regular quartermaster. There might be a Regular commanding officer if a suitable TA officer has not been forthcoming. If there is a TA commanding officer, I hope we shall be able to provide him with a Regular field officer to help with the training of the unit. Among the younger officers, there will be some who have recently completed their year with the Regular Army and been trained and commissioned as officers.

The warrant officers and sergeants, like the officers, will probably include a good many experienced men. Most of them will be war-experienced NCO's who may have served in the unit for some time or responded to our appeal in 1947 and 1948 to come back and give the unit a good start. There will be some Regular Army permanent staff instructors—four or five.

They are assigned for about 2 years and are part of the establishment and not on loan as they were before the last war. There will be some young NCO's serving in the ranks without war experience. These will be men the commanding officer has picked out from the rank and file for promotion. They may be men who have joined the unit as volunteers or they may be National Service men who have been assigned to the unit. I hope very much some of them will be National Service men who, after being assigned, have turned themselves into volunteers and been picked out by the commanding officer for their keenness and efficiency. A wise commanding officer will be on the lookout for the best of the National Service men and waste no time in encouraging him to become a volunteer and go in for promotion. In time to come, the National Service man will be the commanding officer's main source for recruiting volunteers. It will seldom be a question of recruiting an untrained civilian to become a volunteer but of persuading a National Service man to change from one form of service to another. The commanding officer will be anxious to get his best men to put in longer hours and perhaps stay on with the unit when their National Service obligation expires.

Among the rank and file, we shall find the same kind of people but in a rather different proportion. There will be a number of veterans who volunteered, i.e., prewar Territorials or men over 20 who have done their service under the 1939 Act or are deferred because they are miners or agricultural workers. There may be some men who have joined as volunteers before being called up—in particular ex-cadets. Such men can serve before call-up and I hope they will get credit for doing so against their liability after call-up.

Then there will be the National Service man who has served his year. These will be divided into those who have turned themselves into volunteers and those who

have not. Each month after 1950, the proportion of National Service men in the ranks of the Territorial Army will increase at something like 8,000 a month. Every inducement will be held out to the best of these men to volunteer. There are two very good reasons for this. First, we want them, particularly the future NCO's among them, to put in the extra time required of the volunteers in order to qualify themselves for the responsibilities of leadership or specialist duties. Second, we want to maintain a strong unit *esprit de corps* based on enthusiastic volunteers who are prepared to set a new standard of military efficiency.

Military efficiency requires discipline. One of the problems which will face every commanding officer is how to obtain a high standard of discipline in a unit composed of Regular, Volunteer, and National Service men under peacetime conditions. It is quite certain that we must establish a discipline which will hold the unit together in the test of war. In the old days, many Territorial units were able to establish a discipline based on the *esprit de corps* of their unit. But there were others where discipline was slack. The system, or lack of system, did not stand up to the strain of rapid expansion and duplication of units. Regular officers and Regular staffs were too ready to accept a different standard. It was only too common to find orders regarded as suggestions and as a basis for discussion and argument. The importance of unit administration was often missed, and in the early days of mobilization many units suffered unnecessarily because of ignorance of these matters. Whatever else the TA Center may become, it must primarily be a military place where things are done in a military fashion and where the standard of conduct is in the proper tradition of the British Army.

Administration

The home of the unit is the drill hall.

There may be one, if the unit is concentrated, or several, if it is scattered in battery, squadron, or company detachments. The drill hall is intended to provide both training facilities and social amenities. You should therefore find covered space for training, including facilities when required for gun drill, tank drill, miniature range, technical training, lecture rooms, and a tactical model room. Nearby there should be garages for training vehicles. Also, there should be officers for the CO, Adjutant, and Quartermaster and a clothing and arms and equipment store. These, broadly, are the military requirements of a drill hall. The social amenities should include an officers' mess, a sergeants' mess, canteen, and recreation rooms.

At present, there are many drill halls which are below standard and not suitable for the type of unit in occupation. There must be a very considerable building program. This is bound to take some years to complete. We shall do our best to provide good accommodation and some amenities in which the unit can develop a social life of its own. In some cases, we can allot Regular barracks, or buy and convert buildings. In other cases, we can adapt and extend existing accommodations. In many cases, we can only buy the land and put up temporary huts. Until the general housing conditions in the country are better, we are not building permanent drill halls. We are, however, building houses for the permanent staff, including the Regular officer staff, and I hope it will not be long before we can start on our permanent construction program for drill halls.

We have never before had a Territorial Army of anything like the size which we shall have under the National Service Act by 1955. It will be necessary to review the scale and standard of accommodation. Our

600,000 men will be the pick of the manhood of the country and the TA Center must be a place of which the unit is proud. I doubt if even the best buildings we have today are good enough. I would like to see more opportunities for the manly sports and games which the Britisher loves but at which he so often has to be a spectator because of lack of opportunities. Young men will want to box, play football, and improve their skill in the gymnasium and at track events. They will, we hope, have had a taste of these things during their year with the Regular Army. It is not so many years ago that the Regular soldier's place of recreation was the public house, and sports facilities were an unknown luxury. It is my belief that the TA Center of the future will have to pay much more attention to providing natural and healthy pursuits for the young man.

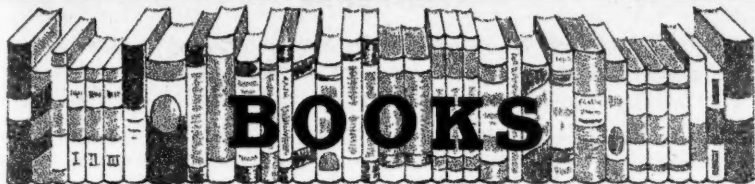
The peacetime administration of the Territorial Army is carried out by County Territorial Associations on behalf of the War Office. It is these Associations which initiate and carry out the building programs and maintain the buildings when they are complete. They also furnish the building, provide heat, light, and add amenities. The Associations also issue the equipment and clothing provided by the Army in bulk. Units account to Associations for the equipment and clothing in their charge. Recruiting and publicity is another function carried out by Associations, and it is being vigorously carried out today on behalf of our present recruiting drive. Some of the functions of TA Associations have changed and others have an increased importance. For instance, commissioning and appointing officers is no longer a function because of the Officer Cadet Training Unit system. On the other hand, accommodation is a bigger job than ever, and with it go the social amenities and welfare which we hope to see on a much improved scale.

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FOR THE MILITARY READER

THE CONSTITUTIONS OF THE AMERICAS. Edited by Russell H. Fitzgibbons. 818 Pages. Bibliography, Index. The University of Chicago Press, Chicago. \$10.00.

This volume contains the first complete collection in the English language of the current constitutions of the 22 American Nations, as of 1 January 1948. A valuable survey of constitutional development in Latin America is provided in an introduction, and under each country there is a condensed account of previous constitutions. The section on Canada contains the British North America Act of 1867, with subsequent amendments, a document that is not widely available. Each document in Spanish, Portuguese, and French has been translated from the original with more attention to literalness and accuracy than to style. In this way, the original meaning is more evident. The 6-page bibliography gives a selective list of works on Latin American constitutions.

CASE HISTORY OF JAPAN. By Francis J. Horner. 252 Pages. Sheed & Ward, New York. \$3.00.

By tracing back through the history of Japan, the author of this book prepares a case history of the Japanese nation in much the same way that a psychologist goes about tracing the history of an individual. As a result, that combination of ruthlessness and virtue which has often perplexed the Western mind about the Japanese nation is made more understandable.

WAR BETWEEN CONTINENTS. By F. O. Miksche and E. Combaux. 202 Pages. Faber and Faber, Ltd., London. \$3.50.

In this book, the authors set out to show the outcome of a third world war, a war that "must not happen." In an analysis of the post-World War II period, they contend that events of our time will prove similar to those following 1918, but will develop more rapidly. Three world areas are considered "friction areas": Central and Western Europe; the Mediterranean and areas in Asia Minor and Central Asia; and the Far East. These areas figure prominently in what the authors call "planetary strategy." There is an analysis on the techniques and tactics of modern warfare, which contends that scientific progress will only increase the ferocity and devastation of a future war, rather than shorten it. The attainment of peace, the authors believe, lies in a United States of Europe, composed of Western European, German, Scandinavian, Danubian, and Balkan federations of nations.

HOW TO THINK CREATIVELY. By Eliot D. Hutchison. 233 Pages. Abingdon-Cokesbury Press, New York. \$2.75.

This book is an analysis of the processes, functions, and patterns of creative thinking. The author gives various techniques which the reader can adapt to his particular needs, and he also examines the experiences, characteristics, and mental habits of various creative thinkers.

STRATEGIC AIR POWER. The Pattern of Dynamic Security. By Stefan T. Possony. 308 Pages. Infantry Journal Press. \$5.00.

While Dr. Possony's *Strategic Air Power* is primarily an examination of the role that the air arm plays in modern warfare, his book in effect actually probes the interdependence of the three armed services. World War II established the rule that superiority in the air is the prime condition for effective application of land and sea power, says Dr. Possony, "Yet air power alone did not win World War II. This war was planned to be won by triphibious power, and by triphibious power it was decided." While the war could not have been won without air power, precisely the same can be said about land and sea power, logistics, industrial production, and numerous other military elements, the author points out. *Strategic Air Power* is designed to establish the general principles, possibilities, and limitations of strategic bombing, and it considers air power within the framework of national defense. "In the atomic age," the author states, "national defense should no longer be a luxury tolerated by the taxpayer. It should become the primary concern of statecraft."

THE REGIONAL ATLAS OF THE WORLD. By John Bartholomew. 160 Pages. 96-page General Index. The Geographical Institute, Edinburg. \$9.00.

This single volume packs into a convenient size maps of every region of the world. The maps are grouped by areas or regions, each of which includes a general map. Two projections are included to help plot flying distances and show the relationship of various countries. An introduction by A. G. Ogilvie includes maps on human distribution, population density, races, and occupations. The accompanying index is in considerable detail.

PUBLIC OPINION AND FOREIGN POLICY. By Lester Markel and others. 227 Pages. Harper & Brothers, New York. \$3.50.

American public opinion and its relationship to the foreign policy of the United States is the subject of this volume published under the auspices of the Council on Foreign Relations. An introductory chapter appraises public opinion as an instrument of foreign policy, shows how the United States has failed to use it effectively, and then indicates how better opinion can be built at home and abroad. Five succeeding chapters, written by prominent journalists, evaluate public opinion in this country from the standpoint of ignorance and prejudice, the President, Congress, the military services, and the Department of State. Four chapters are devoted to foreign public opinion, including communist propaganda activities. Mr. Markel suggests that the solutions to the problem of getting America's belief across to foreign nations lie in education, proper implementation, and proper coordination. The basic element of the problem is that the United States must have a sound foreign policy.

ARABIAN OIL. America's Stake in the Middle East. By Raymond F. Mikesell and Hollis B. Chenery. 142 Pages. 3 Appendices. Index. The University of North Carolina Press, Chapel Hill. \$3.50.

Arabian Oil tells the story of American petroleum interests in the Middle East since the 1930s. It is a study of America's foreign oil policy and the development of petroleum concessions in all countries of the Middle East. Major emphasis, however, is given to the Arabian-American Oil Company in Saudi Arabia. The book deals with United States foreign oil policy and reviews efforts of the United States government to participate directly in Middle East oil operations.